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A Giant Chimney.

A RECENT number of the *Mechanics' Magazine* contains the following data concerning an immense chimney now being built at Dover court, England:

One of the impediments to a perfect enjoyment of the delights of the neighborhood is at this moment in rapid process of removal. The pure air which naturally exists there has hitherto suffered some contamination from an intermixture with it of the fumes and smokes from a series of cement kilns, ranged in a line in close proximity to the neat little railway station of the town. In order to obviate this sometimes too palpable annoyance, the owner of the kilns, which are fed with material dredged from the estuary of the Orwell, and from the west rocks near Walton-on-the-Naze, is causing a gigantic shaft to be erected. This is a remarkably well-proportioned square-built structure, formed of the hardest red bricks, and the finest cement of the district. Its height, when finished, will be upwards of 190 feet, and it will form one of the most conspicuous, and, in its way, handsome objects of the place. At its base, the giant chimney is 20 feet square, and at its summit, capped with stone, it will be 8 feet 6 inches across. Some idea may be gained of the large number of bricks used in the construction of the chimney, when it is stated that in a single course at its base 1500 are comprised. A brick tunnel, 100 feet in length, and of large area, will connect the great landmark—for such it will be—with the apices of the various kilns. The fumes generated by the calcination of the cement stones will thus be carried to a height, whence they will be distributed over a much wider area, and of course by diffusion deprived of the power of irritating the lungs of visitors, and the tempers of the inhabitants of Dover court.

Sulphur Mining in Mexico.

CONCEPTION DEL ORO, STATE OF ZACATECAS, MEXICO, August 6, 1871.

TO THE EDITOR—Sir: Sulphur, in its compounds, principally as acid, is of such importance to the useful arts, that it is said the consumption thereof, with that of iron, can serve as an indicator of the industrial activity of a country. A few remarks on a sulphur mine in this country may therefore be interesting to some of your readers.

The high plain extending west from Mazapil, Zac., towards the State of Durango, elevated about 6,000 feet above the sea, is mostly formed of limestone slates and clay slates, the last alternating here and there with sandstones, in which I found a few impressions of sigillaria and stigmaria, the only petrefactions I did find. This formation, which, near to the Rio Grande, incloses beds of bituminous coal, is here raised up, and broken through by eruptions of plutonic and volcanic rocks, forming mountain chains, low hills, or isolated sharp peaks. East of the hacienda "Las Norias," on the main road to the famous mining town of Fresnillo, the limestone is raised up by trap rock. Near to the contact line, transverse to the strata, a deposit of sulphur in gypsum occurs, in the shape of a vein, dipping 60° to West. The crystalline gypsum, of pure white color, where it is not impregnated by sulphur, is from 20 to 60 feet thick, and incloses a vein of native sulphur from 8 inches to 3 feet wide. This sulphur is of a brownish green color, that impregnating the gypsum of a peculiar yellow. On the upper and lower wall of the gypsum, the limestone has been eaten away by the acid waters or vapors, leaving, on both sides, openings of more or less extent, which, by the crumbling down of debris, have again been partly filled up. In this way the gypsum and sulphur form a large sheet, standing at an inclination of 60°, nearly free between the two walls. The proximity of great masses of siliceous minerals (sinter and chalcedony) lead to the conclusion that hot springs once existed here. The mine has been worked to a depth of about 250 feet, the levels extending more than 300 feet. The produce, during the whole time it has been worked, five or six years, is estimated at about 1,000 tons of sulphur. Only the purer pieces have been made use of, and of these, not more than 50 or 60 per cent. has been extracted. Rocks with from 30 to 50 per cent. of sulphur go to the dump. The distillation is carried on in earthen pots, of very little thickness, holding about fifty pounds each. Those pots, of which from six to eight are set in a most rudely-constructed furnace, are not only very imperfectly closed with the bottoms of old broken pots, but they are so very porous that they give a pretty free passage to the vapors. Through the carelessness of the workmen, the mine has been on fire several times, but as it has only one entrance, the fire has been easily choked by damping the door. The dump, which must have held immense quantities of sulphur, has been burnt also.

C. S.

Tin-Lined Lead Pipe.

WE learn from our exchanges that pipe of this kind is now being manufactured in England, and it is said that they are rapidly becoming very popular. In this country, where they have been much longer in use, they are continually gaining ground, the company having taken every possible means to enlighten the practical plumbers as to the true value of the pipe, and to remove the prejudice, that usually exists against a new article, no matter how good it may be.

How Grindstones are Manufactured.

IN an article on the Berea, Ohio, quarries, the *Iron World and Manufacturer* contains some very interesting items on the subject of grindstones. We make the following extracts from their article:

The different strata of rock lie directly on each other, with no intervening layer of foreign substances, but are wholly distinct from each other, and the faces, or top and bottom, of each layer are harder than the interior when first exposed to air, though the latter hardens on exposure until all the exposed surfaces are of uniform quality in duration. The upper layers being cleared away, and the upper face of the sheet to be worked thoroughly exposed, the first work is to cut a narrow trench on either of the opposite sides, close to the bank and to the full depth of the sheet. This is the most expensive part of the operation, the trenching in the thick rock progressing slowly, and costing about a dollar a foot, with no direct return in the shape of stone. When the trenches are completed a hole is drilled at the back of the mass to the depth of the sheet, a charge of powder tamped in and the blast fixed. The explosion "throws out" the whole mass probably of the weight of about a thousand tons. The mass itself is rarely shivered or flawed by the shock, but the effect of the explosion is confined to separating the sheet from the back rock by a crack extending from trench to trench, the whole depth of the sheet, and sending the entire mass forward the fraction of an inch. There is now an immense block of stone, which could be removed in a solid sheet were the machinery powerful enough to lift it from its bed. As that cannot be done, and the enormous mass would be useless if taken up in its present condition, it is reduced to more managable shape. The required sizes of the blocks, whether for building, flagging, grindstones, or other purposes, having been marked out, holes are drilled at intervals along the lines, and iron wedges are driven until the block is broken out to the required size. It is then taken out, and either left in its present state or turned off to the required size for building purposes, and if for flagging, grindstones, or other purposes requiring a thinner slab, is split with wedges to the required thickness. This splitting is done with almost marvellous ease and celerity. Two men can work at the same block, and by driving a wedge or two in the direction of the line of cleavage, the stone splits with the ease and regularity of a pine block, leaving smooth sheets of the thickness desired, and uniform throughout. When first taken out, the stone, if of good quality, is of moderate softness and easily worked, the fine chips crumbling into powder beneath the pressure of the fingers; but with exposure to the air it gradually hardens until it rivals granite itself. The stone being reduced to proper shape, or so much done to it as is needful in the quarry, it is taken up by a powerful derrick, which swings it to another derrick, if necessary, which catches it and swings it above the bank into a railroad car waiting to receive it. When a train is thus loaded, it is drawn out, and the stone either taken to the works to be further dressed, or sent direct to its destination. Most orders for stone are filled direct from the quarries, but grindstones have to pass through another process.

The best grindstones are taken from the thick sheets. These stones are uniform in texture, preserve their color, and are not liable to break or scale as the stone from the thinner sheets, especially from those near the surface. The slabs are split from the block in the quarry, and a man breaks them into disks or "patterns" of the diameter permitted by the size of the slab. The circle is cut with no other guide than the eye of the workman, but long experience has generally so trained the eye that a very good circle is produced. In this shape the "patterns" are loaded on to a platform which is swung by the derricks up to the cars, and on them run down to the lathe shops, where the remaining operations are gone through with. On reaching the works

the "patterns" are placed on blocks and a square hole cut in the centre of each by hand, the centre being found by the unguided eye, or, in case of the less experienced hands, by rough measurement with the hammer handle. An iron centre is inserted into the hole of the "pattern," which is then mounted on the mandrel of a lathe turned by steam, and the "pattern" commences to revolve. Two men grasp long bars of iron with tempered points, and, standing one on each side of the revolving "pattern," apply the points of the cutting bars to its periphery, and in a few seconds it is cut down to a true circle within an even, slightly beveled surface. Iron pegs at the sides of the lathe assist to hold the cutting bars in place, and to determine the size of the circle. The bars are then applied to the sides, and so guided as to cut away the rough surface of the stone, leaving an even surface dressed in concentric circles. During this operation a solid red flame marks the point of contact between the iron and the stone, for it must be borne in mind that the stone is nearly pure silex. The cutting bars require hammering after the turning of every grindstone, and at frequent intervals are taken to the adjoining blacksmith's shop to be tempered. Removed from the mandrel the stone is trundled into a contiguous shed and the "eye" dressed smooth with a hammer. It is then, if small, weighed, and the weight chopped on the side by a boy with hammer and chisel. The stones are now ready for shipment, which is done by sending them loose, or by packing them in hogsheads, or in small cases, according to their destination. Berea grindstones range from a few pounds, for domestic use, up to several hundred pounds. Most of the larger kinds, used in factories for the rougher kinds of work, are made of coarser grit than that found in Berea. Those of this kind shipped from Berea are brought from the Lake Abram quarry, of which more will be said directly, and some of these range as high as three tons. Of course these are not weighed, but their approximate, if not actual, weight is ascertained by measurement, and by reference to a series of tables adopted as authority by all the quarrymen and dealers in stone, and distributed gratuitously to all their customers.

The McDermotts were the first parties to make the introduction of this stone to eastern builders, and now almost wholly supply this material for the erection of fine buildings in Canada and the Eastern States, and so great is the favor with which it has been received by leading builders that all the quarries producing block stone are taxed to their utmost capacity. The qualities of block stone now supplied have been subjected to the severest tests, and have come off triumphant. The result has been a demand unequalled in the history of the stone business in this country. The peculiarities of Berea stone for building purposes are that it can be got out of perfectly homogenous quality, can be worked with as great ease and cheapness as any freestone to be found, but becomes as hard and durable as granite. This combination of softness under the chisel and subsequent enduring hardness gives it a superiority over granite, which is costly in working, and to this may be added the practical indestructibility of the Berea stone by fire. In cases where the hottest fires have destroyed buildings, the Berea stone remained intact, and was used again without waste. For these reasons Eastern builders have been able to come West, procure their stone, and put up their buildings with a great saving of cost, notwithstanding the greater distance, over the use of granite.

Russian Sheet Iron.

Dr. Percy, of the London School of Mines, who has, at the request of a number of gentlemen engaged in the manufacture of tin-plate in Wales, published a pamphlet, containing all the information he has been able to collect, on the process employed in manufacturing the fine Russian sheet-iron.

The Professor thinks that a similar article migh be produced in England, without copying in every respect the laborious Russian process.

The pamphlet contains descriptions of the Russian mode of manufacture by Prof. Pumpelly of Harvard, and others who have witnessed it.

The cause of the presence of the large amount of carbon found on analysing Russian iron, is not difficult to discover when we are fully informed about the process employed in the manufacture.

Mechanical Appliances in the Mont Cenis Tunnel.

The mechanical appliances employed in the Mont Cenis Tunnel consisted of two separate parts.

1. The plant outside the tunnel.

2. The mechanical means employed in the tunnel for the excavation of the rock itself.

The former may be subdivided into—

(*a*) Ventilation.

(*b*) Transmission of motive power.

The latter consists of—

(*a*) The perforation by the machinery, invented by M. Sommeiller, of the holes for blasting.

(*b*) Blasting.

(*c*) Clearing away of the excavated rock.

The requirement of special ventilation and of special excavating appliances, as well as the absolute necessity of a particular kind of motive power, is self-evident when the length of the Mont Cenis Tunnel is taken into consideration.

All who ever have carried on mining are aware of the importance and difficulty of ventilation, when the length of the tunnel becomes excessive. It may be interesting to offer a few remarks on this subject, having a special reference to the means employed in the work we are now describing.

The causes of the vitiation of air in tunnels* are the blasting of the mines and consequent explosion of gunpowder, the combustion of lamps, and the respiration of the workmen.

One pound of gunpowder exploding produces

0.49 lb. carbonic acid gas
0.10 „ oxygen
0.41 „ sulphide of potash

Now, as atmospheric air fit for respiration only can contain about 5 per cent. of carbonic acid gas, the explosion of one pound of gunpowder is capable of

$$\frac{0.49}{0.005}$$

vitiating ——— lb., that is 100 lb. of air, or speaking in volume instead of weight, 45 cubic yards of air, one cubic yard of air weighing in round numbers 2.18 lbs.

However, the carbonic acid is not the only gas produced, calculated to render air unfit for respiration.

The proportion of oxygen in the air is nearly permanent, being 79 per cent., and if this percentage is increased, air becomes unfit for breathing.

Further, sulphide of potash considerably vitiates air, and hence we may safely admit that one pound of burnt gunpowder impregnates 148½ cubic yards of air.

Now, practice has shown that, in order to render air fit for respiration in a place where there is no current, from 10 to 13 cubic yards of fresh air per hour have to be introduced for every man employed.

Further, to replace the air consumed by the combustion of each miner's lamp, about 9 cubic yards of air are wanted per hour.

Let us now consider the quantity of air which would have to be consumed for 130 cubic yards of excavated material, excavation being carried on with ordinary means. Practice has shown that, in order to excavate 130 cubic yards of hard rock, 400 blasts are required, and 176 lbs. of gunpowder are consumed; further, to make 400 blasts, 214 days' work are required, calculating a day's work at 12 hours; and, again, as in a gallery, masons, carpenters, etc., are wanted, we may add 120 days' work of 12 hours each.

Supposing, then, that 130 cubic yards of rock should be extracted in 24 hours; during this period of time, we shall have to introduce:

	cubic yards.
For 107 miners, and 60 other workmen	52,424
About 83 oil lamps	18,238
To replace the air vitiated by the explosion of 176 lbs. of gunpowder	26,160

For every 130 cubic yards of rock extracted, 96,822 cubic yards of fresh air is required.

Now, the section of the Tunnel of the Alps having 71¾ square yards, in order to advance *one* yard in length in the excavation, if ordinary means were used, about 53,400 cube yards of air would be consumed, and as the total length of the tunnel is 13,364 yards, to perforate it entirely, over 710,000,000 cubic yards of air would be consumed.

Further, the temperature of air must be kept within certain limits, to maintain the workmen in a proper condition.

We know that approximately for every 98 ft. of depth attained from the surface of the earth, temperature increases 1.80°. The height of the mountain under which the Mont Cenis Tunnel passes being 5285 ft., the temperature in the tunnel would be 127.40°, to which we should further add the temperature produced by the burning of gunpowder and the combustion of lamps, so that we may safely assume the temperature to be 140°.

These considerations will clearly show the absolute necessity of a very efficient system of ventilation being adopted, without which the execution of the work would have been utterly impossible; further, the ordinary means used by miners for ventilation were not sufficient, nor indeed were they applicable.

These ordinary means consist of fans which are placed at the mouth of the tunnel, which is divided into an upper and lower chamber, in order to allow the vitiated and heated air to be drawn along the upper part, and to be replaced by pure air along the lower part of the gallery.

But in tunnels of such excessive length, not only hours, but days would be required before pure air would arrive to the headings, even were the causes of the vitiation of air not permanent.

Hence it was necessary to carry along with great velocity, and compassed in a small volume, a sufficient quantity of air precisely to those parts of the tunnel where the works were concentrated, and the permanent causes of the vitiation of the air existed; or, to speak more correctly, it was indispensable to combine the two means of ventilation.

The exhausting machinery at Bardonnèche consists of a tangential turbine, moved by a column of water 65.7 in. in height. The theoretical velocity is 87 revolutions per minute, and about 40 cubic yards of air can be extracted with it per second.

At Modane the exhausting machinery consists of an ordinary pump. As regards the machinery with which compressed air was sent along to the heading in the tunnel, they were the same as those with which the motive power was produced, and will be described presently; in fact, the introduction of compressed air in the heading was effected by opening cocks along the tubes which carried the motive power. There certainly was a great inconvenience in using compressed air in the ventilation, owing to the consequent loss of useful work. Let us form an idea of this loss by estimating the quantity of work which can be performed by a cubic metre of compressed air.

$\int p\ d\ v$ represents the work which gas produces in expansion. If we suppose that the gas in expanding absorbs so much heat from the surrounding gas, that its temperature becomes equal to that of the latter, the equation of elasticity of the air will be $p\ v = \mathrm{R}\ t = \cos t$, and hence:

$$\int p\ d\ v = \int \mathrm{R}\ t \frac{d\ v}{v} = \mathrm{R}\ t \int \frac{d\ v}{v} =$$

$$\mathrm{R}\ t \log v + \cos t,$$

will express the work done by the gas through expansion.

And as its temperature remains constant, Mari-

* J. Fettarappa, C. E.

OTTE's law receives an application ; the compressed air being supposed by us to expand from a pressure of six atmospheres to that of air, its volume from v_1 will pass to v_o, so that $v_o = 6v_1$, and hence the work which the air through its expansion is capable of producing, will be given by the expression,

$$\int_{v_1}^{v_o} r\, d\, v = \mathrm{R}\, t \log \frac{v_o}{v_o} = \mathrm{R}\, t \log 6,$$

or passing from the Naperian to decimal logarithms,

$$\mathrm{R}\ t \log 6 \times 2.30 ;$$

the constant for air is R=29, 27.

The temperature, $t = z + t = 273 + t$, which we will suppose 300° centigrade, and completing the calculation we find 15,718 kilogrammetres as the result.

This calculation refers to 1 kilog. of compressed air, and 1 metre cube of air weighing 1.3 kilog., according to MARIOTTE's law, the cubic metre of compressed air expanding from the pressure of six atmospheres down to that of one atmospheres, its volume will become 6 metres cube or nearly, and the weight will be 7.80 kilog. ; thus one metre cube of air compressed to six atmospheres, and expanding down to one atmosphere, developes useful work equivalent to 15,718 kilogrammetres $\times$ 7.8 = 122,600 kilogrammetres.

This quantity of work lost by the application of one metre cube of air compressed to six atmospheres for ventilation, is certainly enormous. However, the loss had to be submitted to, in order to make respiration, and continual work at the heading possible.

FRANCIS KOSSUTH, C.E.,
Royal Commissioner for Railways in Italy.
—*Engineering.*

The Origin of Crystalline Rocks.

By T. STERRY HUNT, L.L. D.*

[CONTINUED FROM PAGE 161.]

PROTESTS against the views of this school have, however, not been wanting. SCHEERER, in 1846, in his researches in Polymeric Isomorphism,† attempted to show that iolite and aspasolite, a hydrous species which had been looked upon as resulting from its alteration, were isomorphous species crystallizing together, and, in like manner, that the association of olivine and serpentine in the same crystal, at Snarum in Norway, was a case of envelopment of two isomorphous species. In both of these instances he maintained the existence of isomorphous relations between silicates in which 3HO replaced MgO. He hence rejected the view of GUSTAF ROSE that these serpentine crystals were results of the alteration of olivine, and supported his own by reasons drawn from the conditions in which the crystals occur. In 1853 I took up this question and endeavored to show that these cases of isomorphism described by SCHEERER, entered into a more general law of isomorphism pointed out by me among homologous compounds differing in their formulas by nM_2O_2 (M=hydrogen or a metal). I insisted, moreover, on its bearing upon the received views of the alteration of minerals, and remarked, "The generally admitted notions of pseudomorphism seem to have originated in a too exclusive plutonism, and require such varied hypotheses to explain the different cases, that we are led to seek for some more simple explanation and to find it, in many instances, in the association and crystallizing together of homologous and isomorphous species."‡ Subsequently, in 1860, I combatted the view of BISCHOF, adopted by DANA, that "regional metamorphism is pseudomorphism on a grand scale," in the following terms :—"The ingenious speculations of BISCHOF and others, on the possible alteration of mineral species by the action of various saline and alkaline solutions, may pass for what they are worth, although we are satisfied that by far the greater part of the so-called cases of pseudomorphism in silicates are purely imaginary, and, when real, are but local and accidental phenomena. BISCHOF's notion of the pseudomorphism of silicates like feldspars and pyroxenes, presupposes the existence of crystalline rocks, whose generation this neptunist never attempts to explain, but takes his starting point from a plutonic basis."

I then asserted that the problem to be solved in regional metamorphism is the conversion of sedimentary strata, "derived by chemical and mechanical agencies from the ocean-waters and pre-existing crystalline rocks into aggregations of crystalline silicates. These metamorphic rocks, once formed, are liable to alteration only by local and superficial agencies, and are not, like the tissues of a living organism, subject to incessant transformations, the pseudomorphism of BISCHOF."*

I had not, at that time, seen the essay by DELESSE on Pseudomorphs already referred to, published in 1859, in which he maintained views similar to those set forth by me in 1853 and 1860, declaring that much of what had been regarded as pseudomorphism had no other basis than the observed associations of minerals, and that often "the so-called metamorphism finds its natural explanation in envelopment." These views he ably and ingeniously defended by a careful discussion of the whole range of facts belonging to the history of the subject.

My own expression of opinion on this question, in 1853, had been privately criticised, and I had been charged with a want of comprehension of the question. It was, therefore, with no small pleasure, that I not only saw my views so ably supported by DELESSE, but read the language of CARL FRIEDRICH NAUMANN, who in 1861 wrote to DELESSE as follows, referring to his essay just noticed :—"You have rendered a veritable service to science in restricting pseudomorphs to their true limits, and separating what had been erroneously united to them. As you have remarked, envelopments have, for the most part, nothing in common with pseudomorphs, and it is inconceivable that they have been united by so many mineralogists and geologists. It appears to me, moreover, that they commit an analogous error, when they regard gneisses, amphibolites, etc., as being, all of them, the results of metamorphic epigenesis, and not original rocks. It is precisely because pseudomorphism has been so often confounded with metamorphism that this error has found acceptance. I only admit a pseudomorph where there is some crystal the form of which has been preserved. There are very many metamorphic substances which are, in no sense of the word, pseudomorphs. Had the name of *crystalloid* been chosen, instead of pseudomorph, this confusion would certainly have never found its way into the science. I think, with you, that the envelopment of two minerals is most generally explained by a *contemporaneous* and *original* crystallization. Secondary envelopments, however, exist, and such may be called pseudomorphs or crystalloids, if they reproduce exactly the form of the crystal enveloped, whether this last still remains, or has entirely disappeared.†

It is unnecessary to remark that the view of DELESSE and NAUMANN, viz. : that the so-called cases of pseudomorphism, on which the theory of metamorphism by alteration has been built, are, for the most part, examples of association and envelopment, and the result of a contemporaneous and original crystallization, is identical with the view suggested by SCHEERER, and generalized by myself long before, when, in 1853, I sought to explain the phenomena in question by "the association and crystallizing together of homologous and isomorphous species."

Later, in 1862, I wrote as follows :

"Pseudomorphism, which is the change of one mineral species into another, by the introduction or the elimination of some element or elements, presupposes metamorphism (*i. e.*, metamorphic or crystalline rocks), since only definite mineral species can be the subjects of this process. To confound metamorphism with pseudomorphism, as BISCHOF, and others after him have done, is therefore an error. It may be further remarked that, although certain pseudomorphic changes may take place in some mineral species, in veins and near the surface, the alteration of great masses of silicated rocks by such a process is as yet an unproved hypothesis."*

Thus this unproved theory of pseudomorphism, as taught by BISCHOF, does not, even if admitted to its fullest extent, advance us a single step towards a solution of the problem of the origin of the various silicates, which, singly or intermingled, make up beds in the crystalline schists. Granting, for the sake of argument, that serpentine results from the alteration of olivine or labradorite, and steatite or chlorite from hornblende, the origin of these anhydrous silicates, which are the subjects of the supposed change, is still unaccounted for. The explanation of this short-sightedness is not far to seek ; as already remarked, BISCHOF, although a professed neptunist, starts from a plutonic basis. When the epigenic origin of serpentine and its related rocks was first taught, these were regarded as eruptive and unstratified, and it was easy to imagine intruded masses of dioritic and feldspathic rocks, which had become the subjects of alteration. As, however, the progress of careful investigation in the field has shown the stratified character of these serpentines, diallage-rocks, steatites, etc., and their intercalation among limestones, argillites, quartzites, gneisses, and mica-schists, and even among feldspathic and hornblendic strata, we are forced to reject, with NAUMANN, the notion of their epigenic derivation, and to regard them as original rocks. This view brings us face to face with the problem of metamorphism as defined by me in 1860† We must either admit that these crystalline schists were created as we find them, or suppose that they were once sands, clays, marls, etc. ; in a word, sediments of chemical and mechanical origin, which, by a subsequent process, have been consolidated and crystallized. Whence, then, come these silicates of magnesia, lime, and iron, which are sources of serpentine, hornblende, steatite, chlorite, etc. ? This is the question which I proposed in that same year, when, after discussing the results of my examination of the tertiary rocks near Paris, containing layers of a hydrous silicate of magnesia, related to talc in composition, among unaltered limestones and clays, I remarked that it is evident "such silicates may be formed in basins at the earth's surface, by reactions between magnesian solutions and dissolved silica ;" and, after some further discussion, said : "Further inquiries in this direction may show to what extent certain rocks composed of calcareous and magnesian silicates may be directly formed in the moist way."‡ Subsequently, in a paper on "The Origin of some Magnesian and Aluminous Rocks," printed in the Canadian *Naturalist* for June, 1860,‖ I repeated these considerations, referring to the well-known fact that silicates of lime, magnesia, and iron-oxyd are deposited during the evaporation of natural waters, including those of alkaline springs and of the Ottawa River. Having described the mode of occurrence of the magnesian silicate, sepiolite, in the Paris basin, and the related quincite, containing some iron-oxyd and disseminated in limestone, I suggested that while steatite has been derived from a compound like sepiolite, the source of serpentine was to be sought in another silicate richer in magnesia ; and that chlorite, unless the result of a subsequent reaction between clay and carbonate of magnesia, was directly formed by a process analogous to that which (according to SCHEERER) has, in recent times, caused the deposition from waters of neolite, a hydrous alumino-magnesian silicate approaching to chlorite in composition,§ "the type of a reaction which formerly generated beds of chlorite in the same way as those of sepiolite or talc." DELESSE, subsequently, in 1861, in his essay on Rock-Metamorphism, insisted upon the sepiolites or so-called

* Address delivered before the American Association at Indianapolis, August 16th.
† Pogg. Annal., lxviii, 319.
‡ Pogg. Annal., lxviii., 319.

* Amer. Jour. Sc. II, xxx, 135.
† Bull. Soc. Geol. de France, II., xviii., 678.

* Descriptive Catalogue, Crystalline Rocks of Canada, p. 80, London Exhibition, 1862 : also, Dublin Quar. Journal, July 1863, and Amer. Jour. Sci., II., xxxvi., 218.
† Amer. Jour. Sci., II., xxx., 135.
‡ Ibid., II., xxix., 284 ; also II., xl., 49.
‖ Ibid., II., xxxii., 286.
§ Pogg. Annal., lxxi., 288,

magnesian marls, as probably the source of steatite, and suggested the derivation of serpentine, chlorite, and other related minerals of the crystalline schists, from deposits approaching these marls in composition.* He recalled, also, the occurrence of chromic oxyd, a frequent accompaniment of these magnesian minerals, in the hydrated iron ores of the same geological horizon with the magnesian marls in France. Delesse did not, however, attempt to account for the origin of these deposits of magnesian marls, in explanation of which I afterwards verified Bischof's observations on the sparing solubility of silicate of magnesia, and showed that silicate of soda, or even artificial hydricated silicate of lime, when added to waters containing magnesian chlorid or sulphate, gives rise, by double decomposition, to a very insoluble magnesian silicate.†

[To be Continued.]

* Etudes sur le Metamorphisme, quarto, pp. 91. Paris, 1861.
† Amer. Jour. Sci., II., xl., 49.

The Possible Depth of Working Coal Mines.

[conclusion from page 194.]

High temperature of the strata operates as an impediment to deep working by heating the air circulating through the passages of the mine. When cool air enters a heated mine, it absorbs heat from the surfaces of the passages through which it flows, and the rate of this absorbtion somewhat exceeds the ratio of the difference between the temperature of the air and that of the surrounding surface with which it is in contact. By the absorption which thus takes place, the air is heated, and this heating process is most rapid at first when the difference of temperature is greatest, and gradually diminishes as the length of the passage is extended, never ceasing until complete assimilation of temperature is effected. The progress towards assimilation of temperature is much more rapid when the air comes in contact with the working face of the coal, which, from being newly exposed, is more highly heated than the surfaces of the permanent air-courses. The rapidity, however, with which the air takes up heat from the working face depends in a great degree upon the system of working. In the cellular system, called, "Pillar and Stall," the air seems to acquire almost immediately the full temperature of the coal, but under the "Long Wall" system there are instances of the air retaining a considerable inferiority of temperature after sweeping past the working face. The great outlay of capital involved in sinking pits to coal lying at extreme depths would render it necessary to work a large area of coal from each sinking, and this would involve air-courses of great length. It thus becomes necessary to consider the question of ventilation under the double aspect of great depth from the surface, and great length of air passages. The Committee think that the advantages arising from mechanical ventilation, in reducing the consumption of fuel necessary to circulate a given volume of air, will diminish as the depth of mines is increased, because the deeper the mine the more powerful is the suction in the upcast shaft. But whatever method be used for producing the current, it would require an extravagant increase of power to accelerate the velocity of the air in any considerable degree, because the resistance of the air increases in a ratio somewhat exceeding that of the cube of the velocity. Thus, if the volume of air were doubled by doubling the velocity of the current, more than eight times the present power would be needed. The longer air-courses incident to deep mining also involve an extension of frictional surface, and this would further add to the difficulty of increasing the ventilation by acceleration of current. In short, the only way in which the volume of air could be very materially increased would be by enlarging the sectional area of the shafts and air-courses. Assuming it to be practicable to effect a large increase of ventilation under the conditions incident to extremely deep mining, it is necessary to consider what would be the cooling effect realized by increasing the volume of air. This is a very complex question, because the reduction of temperature in the air increases the emission of heat from the strata, and because the rate of absorption is affected, not only by difference of temperature, but also by the velocity of the current. The uncertainty which exists on the question of the power of air to absorb heat when flowing at different velocities and in different volumes through heated air-courses, and the difficulty of reasoning out any conclusion upon the subject, led Sir William Armstrong (Chairman of the Committee) to make a series of experiments in which air was forced in varying quantities through pipes of different lengths and sizes immersed in hot water, the temperatures being observed at the point of emergence. In these experiments, the pipes were regarded as representing on a small scale the air-courses of a deep mine, the hot water being the equivalent of the heated strata through which the air would be conveyed. The chief conclusions arrived at from these experiments are in unison with the evidence upon the questions affected. All the witnesses agree in stating that summer and winter make no difference in the temperature of the air in mines, except at short distances from the shaft, which is in harmony with the fact prominently exhibited by the experiments, that increased disparity of temperature is quickly subdued by the accelerated absorption of heat which it occasions. The rise in temperature which takes place in the air as it travels along the passages is recognized by all the witnesses who allude to this subject, and Mr. Hull gives specific rates of increase derived from experiments in Rosebridge Colliery. He says that the temperature was raised 13 degs. in 1500 yards, 16 degs. in 2400 yards, and 19.5 degs. in 3140 yards. As to the effect of increased circulation upon the temperature of the air, the thermometrical observations of Mr. Lindsay Wood, made in the Hetton Collieries, show that little change of temperature is effected when the passages are long. After the air travelled from the shaft to a distance of 3422 yards, he records the temperature both of coal and air at nine different places, and although the volume of air passing at these different places varied from 41,800 cubic feet to only 3000 cubic feet, yet the disturbing effects on the temperature of the air are scarcely discernible.

Mr. Bryham states that, at the working faces in the Rose Bridge Colliery, the air is 70 degs. Fahr., against an earth temperature of 80 degs., thus making a difference of 10 degs.; but, considering that the distance from the shaft was, in this case, only 500 yards, that the long-wall system of working was in operation, and that the circulation was unusually large, this reduction of 10 degs. is not so remarkable as the smaller reduction of 7 degs. in the instance of Pendleton Colliery. The experiments made with air pipes immersed in hot water have a strict application to newly formed air passages in a mine, and to coal at the working faces where a fresh surface is continually being exposed, but they afford no criterion of the indirect effect which increased ventilation would, in progress of time, exercise upon the temperature of the air by the cooling of the passages. The Committee have no sufficient data to enable them to judge of the extent to which this cooling action would proceed within periods commensurate with the duration of collieries. Theoretically considered, the cooling will be most rapid when the air-course is new, and it will take place to the greatest extent near the shaft, where the air is coldest. The evidence is in accordance with these views.

Mr. Lindsay Wood gives a case in which the coal at a depth of 1100 ft., and at a distance of 312 yards from the shaft, has been cooled to 60 degs. by an exposure for twenty-five years to a current of 104,000 cubic feet per minute. In this example, the temperature due to depth is 67 5 degs., so that the cooling effect is to the extent of 7·5 degs. It will be observed that the distance from the shaft is short. In the examples given by witnesses of reductions similarly effected at long distances from the shaft, the results are very much smaller; the largest reduction mentioned in the evidence, at distances exceeding 2000 yards, is 6 degs., and at distances exceeding 3000 yards, the highest quoted reduction is 1½ degs. Increase of ventilation would operate to increase all these reductions, but to what extent and in what time the Committee are unable to say. The more general introduction of coal-cutting machines, worked by compressed air conveyed into the mines by pipes, would have some effect in lowering temperature, and would at the same time supersede the labor of hewing, which, from its arduous nature, is that form of labor against which high temperature chiefly militates. Mr. Lindsay Wood states in his evidence that the air discharged from the pneumatic coal-cutting machines is reduced by expansion in the act of escaping to a temperature of 7 degs. Fahr. below freezing, and that the air from one machine is sufficient to lower the temperature of the whole body of air flowing past a working face 1 deg. Fahr. He thinks that as many as seven of these machines might be employed at one working face; but it does not follow that the collective action of these seven machines would reduce the temperature sevenfold, because the principle of acclerated absorption by reduction of temperature again intervenes, and would in a great measure defeat the cooling action of the machines. Moreover, if jointly with the use of these machines, reduction of temperature were to be attempted by increasing the volume of air in circulation, the diluting effect of the cold air from the machines would be reduced in proportion as the volume of circulating air was increased.

The First Photographer.

It has been generally taken for granted that the discovery of photography dates back only to the year 1839, when Daguerre in France and Talbot in England published the results of their investigations. It appears probable, however, that the art was discovered and practically applied by Matthew Boulton, partner of the celebrated James Watt, as long ago as the close of the last century, and was then allowed to fall into neglect, and to be forgotten. Boulton belonged to a secret scientific society, which was accustomed to meet at his house. He died in 1809; and, on the subsequent examination and removal of the vast collection of documents stored in his library, there were found a number of crumpled and folded sheets of paper with pictures on them of the most puzzling kind. On smoothing out these pictures, they were found to consist of copies, on large sheets of very coarse paper, of certain well-known designs by Kaufmann—the porous water-marked paper being thickly coated with some varnish-like substance, on the surface of which the picture had been produced. All the sheets found in the library, as well as others afterward discovered, presented the same characteristics—a glossy surface, with minute varnish-like cracks, the drawing of the figures most elaborately finished, the lights and shades so fully rendered as to give much the effect of a mezzotint, and an invariable reversal of the position of the figures. Further research also led to the discovery of two silver-metal plates, about the size of a sheet of note paper, precisely resembling in appearance those used by Daguerre in the early days of photography. On each of these plates was a faint image of Boulton's house, so unmistakably taken from nature, and so evidently produced by the aid of light, that experts at once pronounced them to be photographic pictures, taken directly by means of a camera. Attached to these plates was a memorandum stating that they were "sun pictures," representing the house prior to certain alterations made in 1791. All these facts lead to the inevitable conclusion that the discoveries of Daguerre were anticipated by Boulton. Watt, it is well known, was the true father of the steam-engine, which in his hands first became a machine of real practical value; and it is a curious fact that a discovery of almost equal importance, in a wholly different field of scientific research, should have been made by the man associated with him as a partner in business.—*Boston Journal of Chemistry.*

THE COAL TRADE.

B. R. WESTERN, COAL EDITOR.

Anthracite Coals.

NEW YORK, Sept. 29, 1871.

WHOLESALE.—The market is not as firm this week as last. This is, no doubt, caused by the Scranton Sale, which more or less monopolises buyers a few days before and after each sale. Prices are, however, well maintained, and an advance of about fifty cents per ton will be noted in our new quotations below. The Scranton Sale was well attended, and there was great competition for the "family sizes."

The prices were good, showing an advance over the sales of July and August. The room was crowded with buyers, and the bidding was spirited.

There were 47,000 tons of stove coal sold, at prices ranging from $6 to $6 15 per ton, and lots of 5,000 tons were purchased by two or three parties.

The following is the comparative statement for August and September:

	TONS.	SEPT.	AUGUST.
Lump	11,000	$4 15 @4 27½	$4 00 @4 17½
Steamboat	11,000	4 47½@4 50	4 27½@4 42½
Grate	25,000	5 10 @5 30	5 02½@5 07½
Egg	18,000	5 25 @5 47½	5 20 @5 25
Stove	47,000	6 00 @6 15	5 52½@5 60
Chestnut	18 000	4 62½@4 70	4 52½@4 60
	130,000		

The following are the averages on each size:—

Lump	4 20	Egg	5 29½
Steamer	4 49½	Stove	6 02½
Grate	5 16½	Chestnut	4 65

General average of the six sizes, $4 97¼; estimated average advance on sale, 27 cents. These figures we get from the company. It will be remembered that we, last week, predicted about twenty-five cents advance, and gave our reasons why it would be no greater, that the company were so tardy in their delivery of the coal. It will be seen that we were right in our conclusions; but, beyond this detention of boats by the company, there seems to have been a small "ring" formed on the third story of Trinity Building to put up the freights at Elizabethport, which they have succeeded in doing, $1 being now asked for shipments from the Scranton Dock, and 75 to 80 cents from private docks with almost immediate dispatch. Adding, therefore, this advance freight (some fifty cents over the usual rates) to the advance price, and we have an actual advance to buyers of about 57½ cents above last month. The market, during the last six months, has taken the exact course we pointed out to our readers and warned them of. The golden opportunity has now passed; coal has now reached that figure which will no longer warrant us to urge dealers to stock up largely. It only remains for us now to tell the disappointed ones, that must have coal, where they can buy the best coal at the lowest figures.

The new prices for October are not all issued yet: those of a few of the prominent dealers will be found below:

NEW YORK LEHIGH COAL EXCHANGE.

NEW YORK, September 28, 1671.

At a meeting held this day, the following prices were adopted for October shipments at Elizabethport, Port Johnson and Hoboken.

Lump	$6 25	Egg	$6 25
Broken	6 25	Stove	6 50
Chestnut	5 25		

Attest: E. BEKLNAP, Secretary.

The "Line" prices are as follows:—From Mauch Chunk, Lump, $4 00; Broken, $4 00; Egg, $4 00; Stove, $4 25. Chestnut, $3 00. This is 25 cents advance over last month's prices all around. There is, however, an exception in favor of iron furnaces and Philadelphia, which are exempt from this advance. Philadelphia is charged 25 cents additional in Stove Coal.

WHITE, FOWLER & SNOW quote McNeal Lehigh Coal at —Lump, Steamer, Broken and Egg, $6 25; Stove, $6 50; Chestnut, $5 25—delivered on board vessels.

THE WILKESBARRE COAL AND IRON CO: make the following quotations for their Coals:

	OLD CO. LEHIGH. At Port Johnson.	WILKESBARRE. At Hoboken.
Lump	$6 25	$4 75
Steamer	....	4 75
Broken	6 25	5 75
Egg	6 25	5 75
Stove	6 50	6 25
Chestnut	5 50	5 25

Coal alongside at New York, generally 25 cents additional for Lehigh coal, and 30 cents for Wilkesbarre.

FREIGHTS.—Schooners are in fair supply, but "Canalers," "Chunkers," as the trade styles canal boats, are scarce, hence the freight by the former to New Haven is $1 10; Providence, $1 40; Bridgeport, $1 10; Boston, $1 70, while by the latter to New York, Jersey City and Hoboken, they are from 80 cents to $1.

RETAIL.—The retail trade is in a good condition. Families have taken coal freely, and stocks in hand are not very heavy.

BITUMINOUS.—The market is somewhat firmer, and the demand is good. We quote $6 75 alongside at Hoboken or to steamers.

DEATH OF SAMUEL CASTNER.—The anthracite coal trade was very much shocked at the announcement on Saturday last of the death of the above-named gentleman, a member of the firm of CASTNER, STICKNEY & WELLINGTON. Mr. CASTNER was a man generally beloved and respected by the trade, and one whose opinions were always regarded and respected; a man of large liberal heart, he naturally drew about him a host of admiring friends. Strictly conscientious in all his business dealings, and acknowledged to be surpassed by none for business spirit and tact. By his energy, perseverance and genius, he amassed a competence, and represented one of the leading houses in the coal trade, whose credit was the best. At a meeting of the coal trade duly convened, resolutions of condolence with the family and respect to his memory were passed, and the trade further resolved to attend his funeral in a body. Thus one by one great and good men pass from among us. Who shall go next? Be ready!

Anthracite Coal Trade for 1870 and 1871.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending Sept. 23, 1871, compared with week ending Sept. 24, 1870.

COMPANIES.	1870. WEEK.	1870. TOTAL.	1871.* WEEK.	1871.* TOTAL.
Phila & Reading R.R.	102,274	2,065,973	104 586	2,714,126
Schuylkill Canal	22,873	283,825	33,056	714,194
Lehigh Valley R. R.	53,094	2,290,036	75,632	1,544,969
Lehigh & Sus. R. R.	19,615	717,119	32,014	852,098
Lehigh Canal	28,944	507,140	32,775	445,947
Scranton North	14,593	557,251	19,694	335 946
" South	31,980	1,278,990	39,042	745,695
Penn. Coal Co., rail	25,710	835,497	23,579	460,430
" " " canal	....	13,936	241	9,846
Del. & Hud. Canal Co.	....	1,100,193	37,863	653,581
" " East	8,165	277 542	9,419	217,818
" " West	927	61,649	4,572	73,780
South	6,854	331,338	9,042	206,455
Shamokin	11,768	341,621	11,638	463,891
Trevorton	200	65,679	....	....
Lykens Valley Coal Co.	2,416	44,097	2,132	67,745
Wyoming South	9,795	217,364	....	....
Wyoming North	....	....	....	4,167
P. N. Y. C. & R. R. Co.	7,908	222,139	....	104,987
Williamstown Co'y	6,279	217,195	....	....
Big Lick Col	1,715	59,665	3,254	106,664
Total	357,771	11,492 428	438,542	9,721,959
1870		9,721,959	357,771	
Decrease		1,770,469		
Increase			82,771	

* Less coal transported for Co's use and Bituminous coal.

Bituminous Coal Trade, 1870 and 1871.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending Sept. 28, 1871, compared with week ending Sept. 24, 1870.

COMPANIES.	1870. Week.	1870. Year.	1871. Week.	1871. Year.
B. & O. Canal	12,504	390,812	17,578	498,459
C. & O. R. R.	15,830	608,731	26,277	905,837
H. & B. T. R. R.	6,766	225,618	4,472	235,409
Harrisburg & D.	15,679	568,145	13,690	581,129
*L. V. R. R.	1,044	10,943	6.236	291,026
P. & N.Y.C. & R. Co.	5,253	186,471		
Cumberl'd Branch Canal	2,305	68,941	5,237	147,194
" Railroad	3,827	82,844	643	52,322
Total	63,213	2,142,505	74,133	2,711,376
			63,213	2,142,505
Increase.			10,920	568,871

The tonnage of the P. & N. Y. C. & R. R. Co. is included in that of the L. V. R.R. Co

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, September 23, 1871.

BY RAILROAD.—ANTHRACITE.

PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.

	Tons.	Cwt.
From St. Clair	37.470	06
" Port Carbon	8,127	19
" Pottsville	1,318	17
" Schuylkill Haven	31.655	02
" Pine Grove	6,416	13
" Tamaqua	17,007	10
" Harrisburg	33	01
" Dauphin	5,636	10
Total	107,665	18

FOR SHIPMENT BY CANAL.

Passing Frackville Scales	8,851	08
" Mill Creek "	573	05
" Schuylkill Valley Scales	1,653	05
" Mt. Carbon "	2,570	16
" Cressona "	13,794	15
" Pine Grove "		
" Tamaqua "	3,068	11
Total	30,512	09

SHIPPED WESTWARD VIA NORTHERN CENTRAL RAILROAD.

Passing Locust Gap	2,286	04
" Shamokin	2,556	01
" Herndon		
Total	4,842	05

SHIPPED WEST OR SOUTH FROM PINE GROVE.

Via Schuylkill & Susquehanna R. R.	1,160	14
" Lebanon & Pine Grove Branch	1,217	19
Total	2,378	1

CONSUMED ON LATERALS.

From Frackville Scales	832	13
" Mill Creek "	738	13
" Schuylkill Valley Scales	641	15
" Mt. Carbon "	830	08
" Cressona "	450	18
" Pine Grove "	33115	
" Tamaqua "	402	06
Total	3,890	08

LEHIGH AND WYOMING COAL.

Received via Allentown, E. Penn'a Br.	145	08
" " Alburtis, " "	30	02
" " Oreland, G. & N. Br.	1,281	00
" " Connecting R. R.		
" " Willow Street R. R.	216	11
Total	1,673	01

BITUMINOUS.

From Harrisburg	8,020	12
" Connecting R. R., G. & N. Br.		
" Junction R. R.	136	18
Total	8,157	10

COAL FOR COMPANY'S USE.

Anthracite	3 027	11
Bituminous	100	02
Total.	3,127	13

RECAPITULATION.

	Total for Week.	Corresponding week last Year.	
Passing over Main Line and Leb. Val. Branch	107.665 18	106,286 07	i 1,379 11
For Shipment by Canal	30,512 00	24,304 06	i 6,207 14
Shipped Westward via Northern Central R. R.	4,842 05	3.547 13	i 1,294 12
Shipped West or South from Pine Grove	2,378 13	1,212 10	i 1,166 03
Consumed on Laterals	3,890 08	3,393 11	i 496 17
Lehigh and Wyoming Coal	1,673 01	136 12	i 1,536 09
Total Anthracite paying fr'gt	150.962 05	136,880 19	i 14,081 06
Bituminous	8,157 10	10,447 13	d 2,290 03
Total of all kinds paying fr'gt	159,119 15	147,328 12	i 11,791 03
Coal for Company's use	3,127 13	2,875 09	i 252 04
Total Tonnage for Week	162,247 08	150,204 01	i 12,043 07
Since Dec. 1, 1870	4 264197 05	308 575 03	i117762 02
Total to date	4,426444 13	3236779 04	i1199665 09

SHIPPED BY CANAL.

	Total for Week.	Corresponding week last Year.	
From Schuylkill Haven	29,970 00	21,505 00	i 8,465 00
" Port Clinton	3,086 00	815 00	i 2,271 00
Total Tonnage per Week	33,056 00	22,320 00	i 10,736 00
Since Dec. 1, 1870	681,137 12	266,932 16	i 414204 16
Total to date	714,193 12	289,252 16	i 424940 16

Philadelphia and Reading R. R.

Amount of coal transported on the Philadelphia and Reading Railroad during the week ending Saturday, Sept 23, 1871:

	tons.	cwt
From St. Clair	37,470	06
" Port Carbon	8,127	19
" Pottsville	1,318	17
" Schuylkill Haven	31,655	02
" Auburn	8,830	16
" Port Clinton	17,007	10
" Allentown and Alburtis	175	10
" Harrisburgh and Dauphin	13.630	03
Total paying freight	118.276	03
Coal for Company's use	3 123	05
Total for week	121,399	08
Previously this year	3,240,386	17
Total	3,341.786	05
To same time last year	2,679,693	07

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending Sept. 23, 1871.

	1871. WEEK.	1871. YEAR.	1870. WEEK.	1870. YEAR.
By Railway	23,579 05	460,430 09	25,710 08	835.496 11
" Canal	241 07	9,506 09		13,996 08
Total	23 820 12	469,936 18	25,710 08	849,492 19
Decrease 1871, 379,556 01				

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Sus. Div.)

Week ending Sept 23—Compared with same time last year.

WHERE SHIPPED FROM	WEEK 1871., tons ct	WEEK 1870. tons ct.	YEAR 1871 tons cwt.	YEAR 1870. tons cwt.
Wyoming Region	30970 14	26936 00	880459 07	895848 06
Upper Lehigh Region	4559 03	4144 07	56701 04	108672 05
Beaver Meadow Region				
Hazleton Region	11257 11	11063 01	115652 11	222718 19
Mahanoy Region				
Tresckow Region	3697 00		41420 13	
Mauch Chunk Region	6775 19	4378 11	142860 06	63290 12
Totals	57260 07	45621 19	1237094 01	1286330 02
Increase	11638 08			
Decrease			43436 01	
DISTRIBUTION.				
Forwarded East of Mch Chunk by Rail	32014 07	19614 16	852093 04	717138 12
Forwarded East of Mch Chunk by Canal		26919 07	253783 05	362697 06
Delivered at and above Mauch Chunk	19469 16	1009 01	42697 08	31425 60
Delivered to L. & B. R. R. at Plymouth Bridge	3339 11	3461 14	64319 15	150250 01
L. V. R. R. at Packer'n	636 05	617 01	24195 09	19019 03
Totals	57260 07	45621 19	1237094 01	1286330 02
Of the above there was transported on acc'nt of L. C. & N. Co.	10907 04	6032 18	205140 10	88984 05
W.-B. C. & I. Co.	18017 01	16226 11	611549 16	419557 11
Totals.	28324 05	22259 09	816630 06	508541 16
Increase	6064 16		308148 10	
Decrease				

Schuylkill Canal.

Report of coal transported over the Schuylkill Canal for the week ending Saturday, Sept 23, 1871.

	Tons. Cwt.
rom Port Carbon	— —
" Pottsville	— —
" Schuylkill Haven	29,970 00
" Port Clinton	3,066 00
Total for week	33,056 00
Previously this year	681,137 12
Total	714,193 12
To same time last year	283,824 16

Lehigh Coal and Navagation Company,

Report of Coal transported over the Lehigh Canal and L. & S. Div. of Central Railroad of New Jersey for the week ending Sept 23, 1871, and for the year 1871.

	WEEK.	YEAR.
Forwarded East of Mauch Chunk by Rail	32,014	852,098
Delivered at and above do.,	1,500	42,697
Forwarded East of do., by Canal	32,774	445.946
	66,289	1,340,742
Corresponding period last year—		
Forwarded East of Mauch Chunk by Rail	19,614	717,138
Delivered at and above do.,	1,009	31,425
Forwarded East of do., by Canal	28,944	507,139
	49,568	1,255,703
Increase on Railroad	12,890	146,232
Decrease " "		
Increase on Canal		
Decrease " "	3,830	61,192
Of the above there was transported on account of—		
Lehigh Coal Nav. Co.	21,289	374,387
Wilkesbarre Coal & Iron Co.	18,017	611,549
	39,306	985.937
Corresponding period last year—		
Lehigh Coal Nav. Co.	12,718	128.924
Wilkesbarre Coal & Iron Co.	16,226	419.557
	28,944	548,482
Increase	10,361	437,455

Lehigh Canal Coal Trade.

Shipped for the week ending September 22, 1871.

	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total from Mauch Chunk Region	10382 08	169247 09
" " Beaver Meadow "	3112 09	37476 08
" " Treskow "	1370 07	16533 15
" " Mahanoy "	97 10	3734 15
" " Hazleton "	10848 03	114012 16
" " Upper Lehigh "	1267 04	11244 01
" " Wyoming "	5696 12	93697 15
Total	32774 12	445946 19
Corresponding week last year	28944 06	507139 16
Increase	3830 03	
Decrease		61192 17

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for week ending Sept 23, 1871, previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL Tons. Cwt
Total Wyoming	24,495 01	412,416 03
" Hazleton	51,090 06	854,162 18
" Upper Lehigh	85 09	1.554 05
" Beaver Meadow	12,717 17	310,14 . 16
" Mahanoy	11,146 13	386 803 00
" Mauch Chunk	58 01	6,987 07
" Sullivan & Erie	653 08	1,978 17
Total Anthracite	102.251 07	1,974,048 06
Bituminous Coal from all sources	6,236 00	291,026 00
Total by rail and canal	108,487 07	2,265,074 06
Same time last year	76,9-8 18	2,905,628 19
Increase	31,498 09	
Decrease		640,554 13
Forwarded East from Mauch Chunk by rail	75,632 05	1,544,958 16
Same time last year	53,093 17	2,290, 36 10
Increase	22,538 08	
Decrease		745,077 14

RECAPITULATION.

Forwarded East from Mauch Chunk by rail	75,632 05	1,544,958 16
To N. C. R. R., at Mount Carmel		4,066 11
Forwarded North from L. & B. Junction	10,524 00	210,504 00
To L. & S. R. R. at Packerton for rail	209 05	4,883 16
Delivered at M'h Chunk	71 05	841 09
Delivered on line of road above Mauch Chunk	539 12	8,100 01
Delivered above Mauch Chunk for use of L. V. R. R.	1,418 10	38,029 17
To L. & S. R. R., at Penn Hav., for railroad		94 10
Do. for canal	10,655 11	117.977 16
At M. Chunk for canal	3,209 19	44,590 10
Total Anthracite	102,251 07	1,974,048 06
Bituminous Coal	6,236 00	291,026 00
Total all kinds	108,487 07	2,265,074 06

This report includes all Bituminous Coal carried over the Lehigh Valley and P. & N. Y. Railroads from December 1st, 1870, to date.

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Company for the week ending Saturday, Sept 23, 1871.

	WEEK.	SEASON.
North	52,948 00	949 419 00
South	9,042 05	206,454 19
Total	61,990 05	1158,873 19
Corresponding time in 1870:		
North	17.744 15	1,624,759 06
South	6,853 19	337,338 05
Total	24 598 14	1,962,097 11
Increase North	37,391 11	
Decrease South		
Total decrease		806,223 12

Delaware and Hudson Canal Company.

The following is a statement of Coal transported by the Delaware and Hudson Canal Co., for the week ending Sept. 23, 1871.

	WEEK.	SEASON.
By Delaware and Hud. Canal	37,866 00	653,581 00
By Railroad East	9,419 00	217,818 00
" West	4,572 00	73,789 09
" South	9,042 00	206,455 00
TOTAL TONS,	60,899 00	1,151,634 09
For the same period last year.		
by Delaware and Hudson Canal		1,100,193 00
By Railroad East,	8,165 00	277,542 00
" West,	527 00	61,619 00
" South,	6,854 00	337,338 00
TOTAL TONS,	15,946 00	1,776,722 00
Decrease		

Delaware, Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna and Western R. R. for, week ending September 23, 1871.

	Week. Tons. Cwt.	Year. Tons. Cwt.
Shipped North	19,694 06	335,926 08
Shipped South	39,042 08	745,694 16
Total	58,736 14	1,081.621 14
For the corresponding time last year:		
Shipped North	14.593 01	557,249 17
Shipped South	34,980 15	1.278,990 03
Total	49.573 16	1,836,240 00
Increase	9,162 18	
Decrease		754,618 16

Shamokin Coal Trade.

For week ending Septembel 23, 1871	11,637 15
Same time last year	11,768 14
Increase	
Decrease	130 19
Total amount shipped to date	463,881 03
Same time last year	341,620 12
Increase	122,260 11
Decrease	

Huntington and Broad Top R. R. Co.

For week ending Sept. 23, 1871	4,472 tons.
Same time last year	6,766 "
Increase	
Decrease	2,294 "
Total amount shipped to date	235,409 "
Same time last year	225,618 "
Increase	9,791 "
Decrease	

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday Sept. 23, and during the year 1871, compared with the corresponding period of 1870.

WEEK.

	To C & O. Canal Tons. Cwt.	To B.&O. R.R. C. Tons. Cwt	Total. Tons Cwt
1871	17.577 13	26 277 08	43,855 01
1870	12,503 19	15,829 15	28,333 14
Increase	5,073 14	10,447 13	15,521 07
Decrease			

YEAR.

1871	498,459 06	905,836 11	1,404,295 17
1870	390,812 07	608,731 02	999,543 09
Increase	107,646 19	297,105 09	404.752 08
Decrease			

Cumberland Branch

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B.&O.R.R. Co. Tons Cwt.	Total. Tons Cwt.
1871	5,233 15	643 00	5,879 15
1870	2,304 11	3,826 16	6,131 07
Increase	2,932 04		
Decrease		3,183 16	251 12

YEAR.

1871	147,193 11	52,322 04	199,515 15
1870	68,940 14	82,843 17	151,784 11
Increase	78,252 17		47,731 04
Decrease		30,521 13	

Lyken's Valley Colliery Coal Trade.

For week ending Sept. 23, 1871	2,131 14
Same time last year,	2.415 19
Inc ease,	
Decrease,	284 05
Total amount shipped to date,	67,745 00
Same time last year,	42,196 15
Increase,	25,548 05

Big Lick Colliery.

For week ending Sept. 23, 1871	3,253 18
Same time last year	1,715 02
Increase	1,538 16
Decrease	
Total amount shipped to date	106.663 19
Same time last year	59,665 00
Inc ease	46,998 19
Decrease	

Line Prices for Coal Oct, 1871,

	Lump	Broken	Egg	Stove	Ches'.
At Mauch Chunk	4.00	4.00	4 00	4.25	3.00
" Wilkesbarre,	3 75	3.75	3.75	4.00	3.25

Company Coals.

Oct, 1871.

	L.	Str.	Gra.	Eg.	Sto.	Chest
*Scranton at E. Port	— —	— —	— —	— —	— —	— —
*Pittston at Newburgh	5 10	5 10	5 30	5 40	5 80	5 10
*Lackawana at Rond't	5 10	5 10	5 30	5 60	5 95	5 10
Wilk'b're at Hoboken	4 65	4 75	5 75	5 75	6 25	5 25
Old Co. Lehigh at Pt John'n	6 25	6 25	6 25	6 25	6 50	5 50
Lehigh at Eliz. Port	6 25	6 25	6 25	6 25	6 50	8 50

For freights to different points see "Freights."
* To contractors.
* None to sell,

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

	AT NEW YORK, Sep. 1. R. A.	W. A.	AT PHILADELPHIA. Sep. 1. R. A.	W. A.
SCHUYLKILL.				
Lump	$— —	$— —	— —	— —
Steamer	6 00	— —	— —	— — 4 50
Broken	5 75	— —	— —	— —
Egg	5 90 —	— —	5 00	— — 4 75
Stove	6 00 —	— —	5 00	— — 5 00
Chestnut	4 00 —	— —	— —	— —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump, (along side)	6 50	——	— —	— —
Broken	6 00	— —	— —	— —
Egg	6 00	— —	— —	— —
Stove	6 25	— —	— —	— —
Chestnut	5 25	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 6 00@6 25		— —	— —
New England	" —		— —	— —
Locust Mountain	W. A. 6 50		— —	— —
Honey Brook, Le'h	W. A. 5 00@6 25		— —	— —
Spring Mountain	" " 5 00@6 25		— —	— —
Sugar Creek	" " 5 00@6 25		— —	— —
Sugar Loaf	" " 5 00@6 25		— —	— —
Old Comp'y's.	" " 5 00@6 25		— —	— —
Cross Creek	" " 5 00@6 25		— —	— —
Room Run	" 5 00@6 25		— —	— —
Girardville	" " —		— —	— —
McMichael	" " — —		— —	— —
Shamokin	" " 5 25		— —	— —
Lykens Valley	" " 5 75		— —	— —
Broad Top	" " 5 25		— —	— —
Hill & Harris	" " — —		— —	— —
Henry Clay	" " — —		— —	— —
Powelton	" 5 25		— —	— —

*Dealers in these coals may be found in our advertising columns

Prices at Baltimore—Oct, 1871.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 25@5 50
Pittston and Plymouth, do	5 25@5 40
Shamokin Red or White Ash, do	5 25@5 40
Lykens Valley Red Ash, do	— —@5 80
Zerba Valley	— —@— —
Treverton	— —@— —
By retail, all kinds per ton of 2240 lbs.	7 00@7 50
Georges Creek & Cumberland f. o. b. at Locust Point for cargoes	— —@4 75
Fairmont and Clarksburg gas, f. o. b. at L. Point	6 00@6 50
BITUMINOUS COALS.	
Kittaning Coal Co.'s Phœnix Vein f.o.b. at Phila	$ —
Lemon " " "	—
Cumberland Vein Coal	—
Consolidation Coal Co.'s on board N. Y.	6 75
Maryland Coal Co. " "	6 75

Prices at Georget'n, D.C., & Alexandria, Va.

Oct, 1871.

George's Creek and Cumberland f. o. b. for shipping... $4 30@4 40,

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$5 50@5 75
Lykens Valley	6 00@6 20
Shamokin Red or White Ash	5 50@6 50
Trevorton and Zerba Valley	— —@— —

Freights.—Oct, 1871.

Cumberland.	Anthracite.					
TO EASTERN PORTS.	From Georgetown.	From Baltimore.	From Philadel'a.	From East Port, Port Johnson, and Hoboken.	From Newbury...	From Rondout...
Amesbury	$2 75		$2 50	$1 95		
Bangor			2 25	1 70		
Bath	2 75	2 65	2 35	— —		
Boston	2 60	2 60	2 25	1 70	180	1 80
Bridgeport	2 25	2 50		1 10	1 10	1 25
Bristol		2 60		1 40		1 55
Cambridgeport			2 35	1 85		
Derby				1 25		
Dighton	2 30	2 35		— —		
East Cambridge				1 85		
Fall River	2 25	2 30		1 40	1 40	
Hackensack				— —		
Hartford	2 75	3 00	2 40	1 50		
Jersey City		2 00		1 00	70	
Middletown				1 25		
Mystic				1 25		
New Bedford	2 20	2 35	2 00	1 40		
Newburyport	2 75			1 90		1 35
New Haven	2 25	2 30		1 15	1 10	2 20
New London	2 25	2 30	1 95	1 25		1 25
Newport				1 40		1 40
New York	2 00	1 90	1 40	1 00	70	65
Norwalk		2 30		1 10	1 10	
Norwich	2 25	2 30		1 20	1 40	1 50
Pawtucket	2 50	2 50	2 15	1 40		1 65
Portland	2 50	2 60	2 40	1 70		2 00
Portsmouth, N.H	2 75	2 75		1 80		1 50
Providence	2 25	2 30	2 00	1 40	1 50	
Rockport			2 65	— —		
Saco	2 75					
Sag Harbor				1 20		
Salem	2 60	2 65	2 25	1 80		
Stamford				1 10	1 10	
Stonington				1 25	1 20	1 40
Taunton				1 80		
Warren				1 40		
Washington			1 25			
TO RIVER PORTS.						
Albany		80			55	
Catskill		70			50	
Cocksackie		70			50	
Coeyman's		70			65	
Cold Spring	2 20	70			30	
Fishkill	1 60	70	1 60		30	
Haverstraw					60	
Hudson	2 20	2 25			40	
New York					60	
Nyack			1 75		30	
Poughkeepsie					30	
Rhinebeck						
Rondout					75	
Saugerties			1 60		40	
Sing Sing					75	
Stuyvesant					75	
Tarrytown					75	
Troy					55	
West Point			1 75			
Yonkers					60	

Foreign and Provincial Freights.

Oct, 1871.

Foreign.	
Newcastle and Ports on Tyne, per keel of 21 1-5 tons	£14 00@£16 00
Liverpool, 5 per cent primage	13s @15 ton

Prices of Gas Coals.

Oct, 1871.

PROVINCIAL.

Corrected weekly by Louis J. Belloni, Jr., 41-43 Pine st., N. Y

Duty, $1 25, gold

	Coarse	Slack.
Block House	$1 75	@-1 75
Gowrie	1 75	@-1 75

Corrected by Bird, Perkins & Job, 86 South street.

	Coarse.	Culm of Coal
Pictou	$2 25	@1 25
Sydney	2 25	@- 80
Lingan	1 60	@- 80
Little Glace Bay	1 60	@1 00
Caledonia	1 60	@- 80

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty $1 25 per ton, gold, on the coarse coal. 25 per cent. ad valorem on the Culm of Coal.

AMERICAN.

	Currency.
Westmoreland	$7 00 @- —
Fairmount Gas Coal Co. of N. Y.	7 00 @- —
Despard Coal Co.	7 00 @- —
Penn.	7 00 @- —
Newburg Orrel Gas	— @- —
West Fairmount Gas Coal	7 00 @- —

AT PHILADELPHIA.

Powelton	$6 75

TO NEW YORK.

Provincial.	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 37½
Port Caledonia	3 37½
Little Glace Bay	3 25

Prices of Foreign Coals.

Oct, 1871.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, N. Y.

Liverpool Gas Caking	$ 8 00@— —
" " Cannel	10 50@12 00
" House	— —@16 00
" Orrel	12 00@14 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@17 50
" Cannel, "	18 00@20 00

Per ton 2,000 lbs. delivered.

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven for consumption	$1 95
For reshipment	1 85

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 85
C. R. R., N. J., Phillipsburgh to Elizabethport	1 26
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 46

MAUCH CHUNK TO PORT JOHNSON.

L. V. R.R., or L. & S. R.R. from M. C. to Phillipsb'g	$0 58
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 26
Shipping expenses	25
Wharfage	10
Total	$2 49

TO HOBOKEN.

L. V. R. R. Mauch Chunk to Phillipsburgh	$ 85
Morris & Essex R. R. Phillipsburgh to Hoboken	1 25
Shipping expenses	20
Warfage	16
Total	$2 46

TO SOUTH AMBOY.

L. V. R. R.	85
L. & D. R. R. / Cam. & Am. R. R.	1 21
Shipping Expenses	35
Total	$2 4

PENN HAVEN TO ELIZABETHPORT.

L. V. R R. Penn Haven to Phillipsburgh	90
C. RR. of N. J. Phillipsburgh to Elizabethport	126
Shipping expenses	25
Wharfage	10
Total	$ 2 51

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven	Toll..$1.25	Freight	90c....	$2 15
" Port Carbon				
" Port Clinton	" 1.18	"	85c....	2 02

Drawback 15 cents during August.

NEW YORK.

From Schuylkill	Toll..1 10	Freight	$1 85..	$2 95

The Rates of Toll on Lump and Steamer Coal will be ten per cent less than the above rates. The charge will be per ton of 2240 lbs. No charge less than Forty Cents per ton will be made for any distance. A drawback of thirty cents is allowed on all coal passing Fairmount Locks used at Philadelphia and vicinity.

Via Lehigh Canal.

TO PHILADELPHIA

Lehigh Canal	$ 76
Freight and towage	1 10
Total	$1 86

TO NEW YORK.

Lehigh Canal	$1 48
Morris Canal / Freight / Towing	208
Total	$2 56

TO JERSEY CITY.

Lehigh Canal	$ 48
Morris Canal / Freight	2 06
For re-shipment	2 54

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 76
Delaware Division Canal	38
Delaware and Raritan Canal	
Freight	1 25
Towage	20
Total	$2 59

TO NEW BRUNSWICK.

Lehigh Canal	$ 76
Delaware Division Canal	
Delaware and Raritan Canal	38
Freight	1 25
Total	$2 39

MARKET REVIEW.

FOR THE WEEK ENDING SEPT. 30, 1871.

IRON.—The demand for Scotch Pig is still confined to parcels to supply the immediate wants of consumers, but with a light stock, and advices of a further advance on the other side, prices here have again appreciated. Sales have been made of 300 tons Eglinton at $33@$34; 100 do. Summerlee, $35 50; and 111 do. Gartsherrie, $36, the market closing at $34 for Eglinton, $35 for Glengarnock, $36@37 for Gartsherrie, and $38 for Coltness. There continues an active inquiry for American, but the supply is light and transactions are restricted—No 1 is held at $37@$38, and No. 2 $35@$36; 50 tons No. 1 Carbon sold at $37, and 300 do. Mottled, on private terms. Rails remain quiet, but steady at quoted rates; we notice a sale of 150 tons Old Bridge at $42, cash. Refined Bar from store, has again been advanced $2 50 per ton, and most other descriptions are also advanced the same—we now quote Refined Bar, ordinary sizes, $85—ditto 1¼ to 6 by ¼ and 5-16, $90—ditto 1 and 1½ by ¼ and 5-16, $92 50—ditto 2⅞ to 3 Round and Square $92 50—Scroll $102 50@132 50 (no change)—Ovals and Half-round, $102 50@$122 50—Band $97 50 (no change)—Horse Shoe $100@105—Rods ⅝@3-16 $90@125—Hoop $107 50@$150—and Nail Rod 6⅔ cents (no change) cash. Sound Russia Sheet is materially higher, because hardly to be had at any price—17 cents, gold, is asked, but we heard of 55 packs at 16@16½; and 25 do. No. 1 Stained 13½ gold. Common Sheets are quiet, but the Mills are busy running on orders—200 packs sold within our range.

LONDON, September 15.—VIVIAN, YOUNGER and BOND say: The demand continues in full force for all sorts of Manufactured Iron, and another advance is already spoken of in some quarters.

LEAD—The demand for Foreign continues light, but prices are without change; we quote Spanish $6@6 05, gold. 100 tons Spanish sold at $6; 100 do. Refined English, $6 5); and 75 do, Spanish, on private terms. Bar 9¼, Sheet and Pipe, 10¼, and Tin-lined Pipe 15, cash, less ten per cent. to the Trade.

COPPER—New Sheathing is steady at 31 cents; Braziers' ordinary size, 16 oz. per square foot, 40; and Bolts, 34 cash. Ingot has been quiet, but continues firm; the sales are 150,000lb. Lake at 23⅞ cents, cash.

LONDON, September 16.—VIVAIN, YOUNGER & BOND say: An exceedingly large trade in all descriptions of Raw Copper has taken place since our last issue. We report 700 tons of Chili Bars, principally at £67 10s. for Lota, £68 for Urmeneta, and £69 5s. for best brands. At the close an advance is asked. A cargo of Regulus at Liverpool, and one of Ore at Swansea, brought 14s. At the Swansea Ticketing on the 12th inst., 1885 tons of Ores, average produce 15⅞ per cent., were sold at an average of 13s. 9d. per unit. Nearly all the Wallaroo on the spot has been bought for Russian account; for the small quantity available on the spot £77 is now asked. The demand for English Raw Copper has been large, and all the cheap sellers and the second-hand lots have been pretty well cleared out. It is not easy to trace this continued firmness in Copper to its foundation, for just now there is no especial reason why values should improve.

SPELTER.—There has been very little inquiry for Foreign, but prices remain as last noted; we quote nominally 5⅞@6¼ cents gold, as to brand. 25 tons Silesian sold at 5⅞ cents gold.

STEEL.—There is no change to note in any description, our quotations covering job lots from store.

TIN.—Pig has been rather dull, and for the few lots sold, a shade under previous quotations has been accepted in some cases—the Dutch sale to take place to-morrow, will no doubt determine the future of this market, to a great extent—the sales are 500 Pigs Straits at 38⅛@36½ cents; and 25 tons English, part at 34¾, gold—Straits is generally held at 36½; English may be quoted 34⅛@34¾, and Banca 40½, gold—the Boston Shipping List of Saturday, reported 1000 pigs Straits at 36 gold. Plates are in fair stock, but full prices, and even higher figures are asked for prime brands Tin, while ordinary brands are rather pressed on the market—100 bxs. I. C. Charcoal sold at $8 94 ($9 and over asked for prime brands); 1200 do. assorted do., $8 87½; 250 do. I. C. Coke, 10 by 14, $8 25; 500 do., 14 by 20, on private terms; 450 do. Charcoal Terne, $8 22; and 150 do. low grade, $7 75, all gold.

LONDON, September 15.—VIVIAN, YOUNGER & BOND say: We close at about 40s. advance for Straits and English Tin on last week's prices. There is scarcely so much inquiry for Tin Plates, but all the works are very full of orders.

ZINC.—Sheet is steady and firm at previous quotations—we note jobbing sales of Mosselmann at 7⅞@8 cents gold, nett. Manganese, 4@5½.

METALS.

NEW YORK, Sept. 30, 1871.

IRON.—Duty: Bars, 1 to 1¼ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, $7 ₱ ton; Polished Sheet, 3 cts. ₱ lb; Galvanized 2½; Scrap Cast, $6; Wrought, $8 per ton.

	Store Prices
Pig, Scotch No. 1, ₱ ton	34 00@38 0
Pig, American, No. 1	37 00@38 00
Pig, American, No. 2	35 00@36 00
Pig, American, Forge	33 00@34 00
Bar Refined, English and American	80 00@— —
Bar Swedes, assorted sizes (gold)	85 00@100 00
	Store Prices, Cash.
Bar, Swedes	107 50@122 50
Bar, Refined, ord'y sizes	85 00@ — —
Bar, Refined, 1¼ to 6 by ¼ @ 5-16 inch	— —@ 90 00
Bar, Refined, 1 & 1½ by ¼ & 5-16	— —@ 92 00
Bar, Refined, 2½ to 3 Round & Square	— —@ 95 50
Scroll	102 50@132 50
Ovals and half-round	102 50@122 50
Band	— —@ 97 50
Horse Shoe	100 00@105 00
Rods, ⅝ to 3-16 inch	90 00@125 00
Hoop	107 50@150 00
Nail rod	6¾@— —
Sheet, Russia, as to assortment (gold)	16@16½
Sheet, Single, D. and T. Common	—4¾@— 5¾
Sheet, D. and T. Charcoal	— 5¾@—6¼
Sheet, Galv'd, Nos. 14 to 26	27½ to 30 ct. dis. 12@14c ₱
" " Nos. 27, 28, and 29	27½ to 30 ct. dis. 15@18c ₱
Rails, English (gold), ₱ ton	58 00 @59 00
Rails, American, at Works in Pa.	70 00 @71 00

STEEL—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2¼ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 3½ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb		— 15	@— 18
English Spring (2d and 1st quality)		— 7	@— 10
English Blister (2d and 1st quality)		— 10	@— 17
English Machinery		— 11	@— 13
English German (2d and 1st quality)		— 10½	@— 12
American Blister "Black Diamond"		— —	@— 12
American, Cast, Tool	do.	— 15	@— 16
American, Spring,	do.	— 9	@— 11
American Machinery,	do.	— 9	@— 10
American German,	do.	— 9	@— 11

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 32
Copper Bolts	— @— 34
Copper Braziers, 16oz. and over	— @— 34
Copper Nails	— @— 39
Copper, Old Sheathing, &c. mixed lots	20 @— 21
Copper, old, for chemical purposes, 14@16 oz.	23½@— —
Copper, American Ingot	23½@— 24
Yellow Metal, New Sheathing & Bronze	— @— 23
Yellow Metal Bolts	25 @— —
Yellow Metal Nails	— @— 23

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100 lb

Plates, Foreign	(gold)	p. 100 lb.	5 75 @ 6 12½
Plates, Domestic		p. lb.	— 7 @— 11

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2¾ cents ₱ lb.

Galena, ₱ 100 lbs		@- —
Spanish (gold)	6 00	@6 05
German, do.	6 00	@6 05
English do.	6 15	@6 50
Bar (net)	9 25	@ —
Pipe (net)	— —	@10 25
Sheet	— —	@10 25

Colwell, Shaw & Willard Tin-Lined Lead Pipe 15 cts. ₱ lb.

TIN.—Duty: Pig, Bars, and Blocks, 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent.; Roofing 25. ad val.

	Gold ₱ lb.
Banca	40¼@—
Straits	36½@36¾
English	34½@35¾

PLATES.

Fair to Good Brands.	*Gold.*	*Currency.*
I. C. Charcoal, ₱ box	$8 87½@9 12½	$10 25 @10 75
I.C. Coke	7 50 @8 50	9 00 @10 00
Coke Terne	6 37½@7 50	7 25 @ 9 00
Charcoal Terne	8 00 @8 50	9 50 @ 10 00

ZINC—Duty: Pig or Block, $1 50 ₱ 100 lb.; Sheet, 2½ cts. ₱ lb.

Sheet, No. 9 Foreign ₱ lb. — @— — 9¼ @9½

San Francisco Stock Market.

"By Telegraph."

Our list of quotations from the San Francisco Mining Stock Boards is dated California, September 26th. The tendency of prices of the Comstock claims is irregular, with about the average volume of sales. Yellow Jacket, Savage and Imperial have slightly depreciated; the remaining portion of the list has advanced, Belcher noticably so, being quoted $55 in advance of our report dated the 19th. Crown Point is weaker according to the report of the 21st inst.; it was then quoted at $320. Raymond & Ely on that date sold for $64 per share; our report of to-day quotes it at $84, it having more than doubled within the last ten days, and seems at present to form one of the most prominent features in the operations of the Board. We append the report:

Savage	40
Yellow Jacket	57
Kentuck	162
Chollar Potosi	30
Gould & Curry	99
Belcher	535
Imperial	38
Amador	No Sales
Crown Point	"
Raymond & Ely	84

DEPARTMENT OF POPULAR SCIENCE.

How Printing Ink is Made.

It is not very hazardous to assume that a great many persons who have handled printing ink all their working lives have had no very clear idea as to how it is made. A vague notion of lampblack and varnish possesses them; but if asked just what ingredients enter into the compound, and how and in what proportions they are put together, they usually find it difficult to give a satisfactory answer. With the purpose of dissipating the general ignorance as to a point which all printers, at least, should be familiar with, we went out to South Dedham, recently, and took a walk through a famous factory. And a very dirty walk it was too. Lady visitors to an ink factory are advised not to wear their white pique dresses, and gentlemen will do well to put off their white linen suits before passing the inky portals of the establishment. Another piece of sound advice to visitors is, don't touch the door handles; let your guide, who wears gloves that seem appropriate to his Satanic Majesty's fingers, do that service for you. Keep your hands in your pockets, and retain your coat-tail within a limited sphere, and you will come out without serious spot or stain.

There are five separate buildings belonging to the works, the whole containing nearly one million bricks. No. 1 is called the grinding room 30 by 40 feet and two and a half stories. Here are the Bogardus patent mills for grinding the ink, as described further on. In this building is a water-wheel of 35 horse power. No. 2 is the engine room, 30 by 18 feet, containing a steam engine of 27 horse power. No. 3 is the varnish building, 45 by 40 feet, containing 14 set kettles, three of which are 1200 gallons capacity, and one of 1500. Here are also three mixers of 1400 lbs. capacity. No. 4 is used for the manufacture of oil, and contains two large stills weighing 6 tons each, 3 kettles holding 1300 to 1000 gallons, and a tank holding 3000 gallons. In building No. 4 the oil is boiled in two large iron tanks. Besides these there are eight lampblack houses, with one oil tank of 20,000 gallons capacity and five of 2,000 gallons. The oil from these is fed through a pipe into furnaces, and then burned, the flame being conducted into the lampblack houses, where the smoke is condensed and forms the lampblack, falling on the floors like a black snow storm.

The essential ingredients of printing ink are varnish and lampblack. The varnish is made by boiling or burning linseed oil, and mixing crude turpentine and gum copal. Lampblack is a fine soot gathered from the smoke of resinous substances. The substance used in Morrill's factory is rosin, and a heavy petroleum oil. To the soot gathered from the flames of these is added a certain amount of spirit, on the quality of which depends the fineness of the black.

The varnish and lampblack being mixed, they are put together into mixers and thoroughly worked together; the compound is then run through rollers, and finally through eccentric mills, in which the ink—for it is ink, at this stage, is ground fine. It is then put into barrels and kegs and is ready for use. Before it is turned into the mixer, the varnish is run through a strainer having 100 strands to the inch—the netting surrounding the sides of the strainer, whose bottom is perforated, so that all dirt and foreign substances sink and pass off, while the varnish passes through the strands, clear and pure. Dirty as an ink factory is, the most scrupulous cleanliness is required in handling and packing the ink—the barrels in which it is put being free from all dirt.

The color of printing ink depends on the quality of the lampblack used in its composition; the working quality depends on the varnish. So that in order to make good ink, the greatest care and skill must be exercised in the manufacture of these ingredients. Most people would naturally suppose all lampblack to be alike and of a uniform hue; but specimens may be seen which contrast in color as strongly as a heap of sand and a raven's wing. The best lampblack is of an intense and glossy black; the poorest qualities of a dull brown. Many manufacturers use the same quality of lampblack—a poor one—in all kinds of ink. There are secrets connected with the manufacture and manipulation of materials, which have an important bearing on the quality of the product; but these, of course, it would not be proper to disclose. Inks of various kinds vary in price from fourteen cents to five dollars per pound. The average daily product of the factory at South Dedham is 2000 pounds; but when the works are run nights, as frequently happens, this is increased to 3000 pounds. Extensive enlargements and improvements are now in progress, which will largely increase the capacity of the works.—*The Record.*

Geysers.

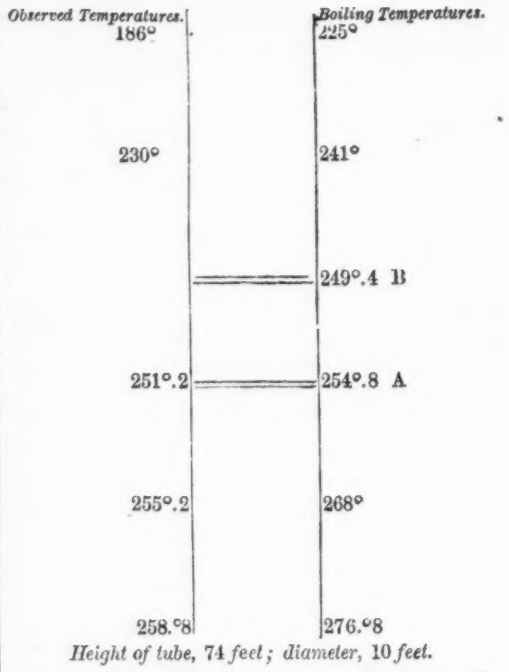
A writer in *Scribner's* for June last, after describing the remarkable spouting geysers of the Fire Hole river in Wyoming Territory, proceeds to give an account of the prevalent theory for the explanation of such phenomena, ascribing it to Bunsen, the distinguished German chemist. This *savant*, he says, "found the water at the bottom of the well of the great geyser in Iceland to be of a constantly increasing temperature up to the moment of an eruption. On one occasion it was as high as 261° Fahrenheit. His idea is that on reaching some unknown point above that temperature ebullition takes place, vapor is suddenly generated in enormous quantities, and an eruption of the superior column of water is the consequence." This sudden development of steam the writer in *Scribner's* ascribes (and says Bunsen ascribes) to the peculiar effects of long continued boiling upon water, observed by Donny. "He discovered that water, long boiled, became more and more free from air, by which its molecular cohesion is so greatly increased, and that, when it is exposed to a heat sufficient to overcome the force of cohesion, the production of steam is so instantaneous and so considerable as to cause explosion."

This statement is curiously in exact. Bunsen's theory of the geyser is scarcely recognizable in the hands of this disguiser! The explosive character of the ebullition of water *long* boiled cannot have much to do with such a geyser as "Old Faithful" in the Fire Hole basin, which empties itself once an hour, or with the miniature geyser exhibited by Tyndall at the Royal Institution, which spouted every five minutes. I will quote here the theory of Bunsen, as given by Tyndall on that occasion, and add merely that after a personal examination of the American geysers, I am satisfied that this explanation is adequate to their case, though they surpass manyfold, in number and in size the geysers of Iceland to which it was first applied.

The following are Tyndall's words: "Imagine the case of a simple thermal silicious spring, whose waters trickle down a gentle incline. The water thus exposed evaporates speedily, and silica is deposited. This deposit gradually elevates the side over which the water passes, until finally the latter has to take another course. The same takes place here; the ground is elevated as before, and the spring has to move forward. Thus it is compelled to travel round and round, discharging its silica and deepening the shaft in which it dwells, until, finally, in the course of ages, the simple spring has produced that wonderful apparatus which has so long puzzled and astonished both the traveler and the philosopher.

Previous to an eruption, both the tube and basin are filled with hot water; detonations which shake the ground are heard at intervals, and each is succeeded by a violent agitation of the water in the basin. The water in the pipe is lifted up, so as to form an eminence in the middle of the basin, and an overflow is the consequence. These detonations are evidently due to the production of steam in the ducts which feed the geyser tube, which steam, escaping into the cooler water of the tube, is there suddenly condensed, and produces the explosions. Professor Bunsen succeeded in determining the temperature of the geyser tube from top to bottom, a few minutes before a great eruption; and these observations revealed the extraordinary fact that at no part of the tube did the water reach its boiling point.

DIAGRAM.



Height of tube, 74 feet; diameter, 10 feet.

In the above sketch are given on one side the temperatures actually observed, and on the other side the temperatures at which water would boil, taking into account both the pressure of the atmosphere and the pressure of the superincumbent column of water. The nearest approach to the boiling point is at A, a height of thirty feet from the bottom; but even here the water is more than 3½° Fahrenheit below the temperature at which it could boil. How then is it possible that an eruption could occur under such circumstances?

Fix your attention upon the water at the point A, where the temperature is within about 3½° of the boiling point. Call to mind the lifting of the column when the detonations are heard. Let us suppose that by the entrance of steam from the ducts near the bottom of the tube, the geyser column is elevated six feet, a height quite within the limits of actual observation; the water at A is thereby transferred to B. Its boiling point at A is 254° 8, and its actual temperature 251° 2; but at B its boiling point is only 249° 4; hence, when transferred from A to B, the heat which it possesses is in excess of that necessary to make it boil. This excess of heat is instantly applied to the generation of steam: the column is thus lifted higher, and the water below is further relieved. More steam is generated; from the middle downwards the mass suddenly bursts into ebullition; the water above, mixed with steam clouds, is projected into the atmosphere; and we have the geyser eruption in all its grandeur.

Thus Tyndall, with his usual felicitous clearness and force explains the action of the great geyser of Iceland, adding, "To Bunsen we owe this beautiful theory." On some future occasion, I shall give some account of the peculiar features of the splendid geysers of Wyoming Territory. These natural wonders are set in a landscape of greater loveliness, and scarcely less grandeur than that which environs their better-known rivals of Iceland. In themselves, they present the same phenomena as those above described, together with some curious variations, due to local interferences. As to size, though perhaps none of them possesses a throat 10 feet in diameter, like that of the great geyser, yet many of them, from throats of one, two and upwards to five feet diameter, throw columns of water to much greater heights and for much longer continuous periods than that hitherto unequalled old syringe. In candor it should be said, that the description contained in the articles published in *Scribner's* of June last exhibits no errors of exaggeration (except in the pictures), and would be tolerably correct, but for its muddy "science."

R. W. R.

THE ENGINEERING AND MINING JOURNAL.

ROSSITER W. RAYMOND, Ph. D.,
WILLARD P. WARD, M. E.,
Editors.

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The Fall of Eureka.

WE have been tardy in noticing, what is perhaps the most startling mining event of the season—the unexpected collapse, early in the summer, of the Eureka of Grass Valley, California. This mine had paid dividends amounting to nearly $2,000,000; and under the excellent management of the Messrs. WATT had become noted as not only the richest, but one of the most thoroughly, economically and prudently operated, in the country. A peculiarity of this mine was the large amount of ground kept in reserve, ready for stoping. In 1870, the superintendent reported three years' work for the mill "in sight" in the mine, assuming that the fifth and sixth levels in depth would yield as well as former work had done.

Unfortunately, the chimney of pay ore in the Eureka pitched east, towards the Idaho; and in the sixth level, it seems to have gone out of the former mine altogether. In this level and in the shaft, which is steadily sinking below it, a fine-looking ledge is exposed, wide and well-defined; but the quartz assays only from $1 20 to $3 60 per ton. Besides exploring in depth, the company is said to be actively prospecting the Roannaise ground, purchased a year or two ago, which adjoins the old Eureka on the west. We sincerely trust that the mine may recover its former prosperity and fame; and we are sure, that whatever skill, resolution and prudence can do in the matter, will be done by the Messrs. WATT.

Meanwhile, of course, the Idaho mine comes into the possession of the great good fortune which has hitherto attended the Eureka. Let us hope that it will be administered with equal wisdom and integrity. Whether the king is dead or not, live the king!

This occurrence may fairly be quoted as an illustration of the precarious value of mining stocks; but not as a proof of the instability of the mining business. The rich chimney of the Eureka mine has not ceased in depth; it has merely crossed an arbitrary boundary line, to the sorrow of the owners on one side and the joy of the owners on the other. So long as our mineral veins are parcelled out to many different proprietors, these changes must be expected. The Eureka company should have owned the extension of its vein on the east; that is all.

The Fair of the American Institute.

IN some respects the preparations and arrangements made at the Rink to accommodate the annual exhibition of the American Institute were more perfect than ever before. In a general way, the position of the different classes of manufactures within the building does not differ essentially from last year, though the place given to the photographs and works of art is decidedly better calculated to display them to good advantage, and considerable space that was last year wasted is made available.

The number of visitors is undiminished, and in the evening, when the band is playing, some of the more attractive departments are very uncomfortably crowded.

On entering the fair by the Third avenue entrance one first passes through, or rather under, the department of fine art, which is easily accessible by a pair of stairs on the right. It was promised, at the opening of the fair, that Miss VINNIE REAM would spend several hours each day at the fair, modelling in clay; but we have not yet seen either the lady herself, or anything that looked like a model in course of construction. Though we have no special admiration for Miss REAM, it would add considerably to the attraction of the art gallery to have on exhibition a live sculptress, or even sculptor, at work.

In passing through the art department, and entering the main building, one comes into the midst of a number of miscellaneous articles of household economy and ornament, which are arranged on the raised platform a few feet above the main floor. Many, in fact we might say the majority, of these articles differ scarcely at all from those which one sees every day in the Broadway windows. After passing a number of beds, billiard tables, and furniture, the first ingenious little contrivance which we noticed was one which, by means of the contraction of a piece of metal on cooling, shuts off the gas from a burner shortly after the flame has been blown out. Then follow a number of sewing-machines and tools, till we reach the corner of the building, where the model flour-mill of the HECKER BROTHERS has been erected, and is in operation. Wherever it was practical, glass has been employed in the construction of this mill, so that the operation is as patent as possible.

In the machinery department the Allen engine, which became such a familiar object to the visitors of the last fair, is missing, and its place is supplied by an engine, the cylinder of which is perhaps about as large as that of the Allen engine, but which runs slowly, and is altogether a less striking affair.

A more minute description of the engines we reserve for another occasion. One of Rider's caloric engines is working away at a lively rate even though a brake is applied to the driving wheel, to indicate the amount of power it is developing. A small horizontal engine of the same inventor is also exhibited by the Delamater Iron Works.

One of MORTONS jigs, which is said to do excellent work in concentrating, is to be seen in operation. There is but little doubt that in some respects this machine is an improvement on the best European jigs that we have ever seen.

We are, upon the whole, inclined to the opinion that the present exhibition is hardly equal to that of last year, though there is yet time before its close for the improvement of the present show, by the introduction of new articles.

Mining Statistics.

THE United States Commissioner of Mining Statistics has returned from his annual tour on the Pacific slope, and may be addressed at this office. In reply to many inquiries, the following facts are hereby stated on his authority, for the benefit of the Western press and public.

1. The Commissioner's report of 1871 (covering 1870) was rendered last March, and is now in print at Washington. Unfortunately the Joint Committee of Congress on Printing refused, although earnestly solicited by the Commissioner and by members from the mining States, to report for passage the necessary resolution authorizing an extra edition for public distribution. This was in accordance with the understanding that no business should be acted upon at the short Spring session, other than the Ku-Klux bill. An exception was made by the same Committee in favor of the United States Census and the Coast Survey; and it was hoped by the Commissioner that the same might be done for the Mining Statistics. The decision of the Committee merely postpones the matter till December next; and the reports will doubtless be distributed during the winter.

2. The report for the current year will be rendered early in 1872.

3. Congress has never put any part of the editions of these reports hitherto under the control of the Commissioner. Applicants must address Senators or Representatives. Messrs. J. B. FORD & Co. of this city, have been in the habit of issuing, as a private enterprise, small editions of these volumes, in somewhat handsomer style than the ordinary "pub. doc." copies. We learn from them that the report of 1870 is entirely exhausted, and that a few copies remain of the report of 1869. They propose to publish next month the report of 1871, in an octavo volume of 550 pages, with plates. Whoever cannot wait to get a copy gratis from his representative at Washington, or is willing to pay for a little extra beauty of paper and binding, may send his order to that firm.

Torpedo Explosions.

IT seems that we are not to be allowed an exclusive right to indulge in dangerous toys. It is true that we have "Union Torpedoes," and that the explosion of a quantity of them the other day, killed several people and did considerable damage to property, but in England "Mitrailleuse cartridges" are made, and they are probably about as good as the torpedoes. They also carry the palm of priority, for we learn, from the *Mechanics' Magazine* of July 29th, that a clerk in the Victoria Station, Manchester, received for transmission by railway a parcel which he placed upon the floor, an act which was immediately followed by a loud explosion, windows being shattered, a hole forced through the floor, and a number of persons more or less injured. About an hour later the same clerk received another parcel, which being dropped upon the ground produced a similar explosion. This, again, broke windows, while the clerk sustained a contusion of the thigh and other slighter injuries. Examination led to the discovery that each of these parcels comprised a quantity of detonating toys made of tin tubes labelled "Mitrailleuse cartridge." It is stated that the makers of these "lively" articles are under the impression that there is no danger in sending them in packages by ordinary

conveyance. This would seem to be a delusion, and rather a serious one.

It would be very satisfactory to know whether "the same clerk" has handled any more parcels of that kind, and whether he continues "to drop them on the ground" to make sure of their identity. If that is part of his business, he ought to be well paid for it, as it is, probably, of a merely temporary nature.

The Ninth Census and the Chinese.

We are indebted to Gen. Francis A. Walker, Superintendent of the Census, for the advance sheets of the first 299 pages of the Population Volume of the Census, comprising the population tables of that volume. These crowded columns, and their excellent arrangement, bear witness to both the industry and the skill which have presided over the work. In spite of the drawbacks entailed by an antiquated and defective law, the Ninth Census will show a great advance in completeness and accuracy over its predecessors.

We note that the aggregate number of Chinese in the United States is 63,254, including 55 Japanese. Of this number, California has 49,310 (33 Japanese). Considering that the whole population of California is 560,247, and the population of foreign parentage, aside from these terrible Asiatics, numbers 274,197, and, moreover, that the foreign-born European population has increased since 1860 by 162,602, or more than 145 per cent., while the Chinese have increased but 14,377, or less than 42 per cent., we respectfully inquire whether the anxiety of politicians in California about the invasion of the barbarians is not about played out. It has been tolerably thin and transparent for a good while. Is there anybody left who cannot see through it?

Wooden Railroad in Canada.

A wooden railway on the 4-feet 8½-inch gauge is being constructed from the town of Sorel, at the confluence of the Richelieu River with the St. Lawrence, through Drummondville, to Arthabaska, Province of Quebec, by Mr. L. A. Senecal, contractor. The Montreal *Herald* gives a long account of a recent trip on the line. Upwards of 2000 men were at work, and the rails are laid on a large portion of the road. An experimental trip was made, the train going at the rate of twenty-five miles per hour, and running with remarkable smoothness. The journal quoted furnishes the following particulars: "The ties, which are of hemlock and tamarac, are now brought down on trucks from the woods through which the railway runs; they are put on a rollway, run up to most ingenious circular saws, so gauged that at one operation they are morticed the proper depth and distance, not the difference of a hair breadth being found between one and another. As fast as they are cut, and the operation is very fast indeed, the prepared ties are rolled over to a different siding from that on which they are received, an ordinary circular saw sides them, and they are loaded up to be run out to the place where they are wanted. The wedges for laying up the rails are also prepared here. The rails are of maple, four by seven inches, and fourteen feet long, the gauge of the line being 4 feet 8½ inches. The cost of the line, in which cost are included stations (nine in number), car and locomotive depot, engine and repairing shops, engine and tender, two passenger cars, eight grain cars, and twenty-five wood cars, is $5,000 a mile, in full for all but the Yamaska Bridge, which cost $35,000. It should be mentioned that land damages, fences, etc., are included, also, in this amount.—*The Railroad Gazette.*

London Tramways.

The South London system of the London Tramways Company was on Monday further developed by the opening of the new line from Clapham and Brixton to Blackfriars Bridge, via Kensington road, Lambeth road, St. George's circus, and Blackfriars road. The cars run every ten minutes. In the early part of the day the cars met with some delays, owing to the difficulties of working the sharp curves on the line at the junction of the Kennington and Lambeth roads, and also at St. George's circus. A large body of workmen were at once employed in rectifying the evil, and in the latter part of the day the whole of the line, including the curves, worked smoothly. The fares are 3d. between Blackfriars and Brixton or Clapham, 2d. between Blackfriars and the Horns at Kennington.

Use of a Screw Propeller Fitted to Sailing Vessels.

E. Martin proposes to fit sailing ships with a screw propeller, to be set into motion by the movement of the ship while sailing, the object being to employ the mechanical power thus obtained for the purpose more especially of imparting movement to a magneto-electrical apparatus, with the view of giving to sailing vessels the advantage of electro-magnetic light on deck at nights, instead of the use of oil lamps now applied, for indicating the ship's course and presence to other vessels.

MINING SUMMARY.

Nevada.

The White Pine *News* of September 16, gives the following interesting Mining Review for the week ending September 16:

The work for the week has been satisfactory—everything looking well as we write, with an increased bullion shipment, all the stamps dropping, and a full force on most of the leading mines. Litigation has occasioned the retarding of work and a consequent cutting off from the bullion yield in one or two instances, but these hindrances are only temporary. The International is running sixty stamps on second-class ore, of which a large supply is on the mill dump and unlimited amounts in sight in the mine. Pending repairs to the Tramway, teams are delivering about seventy tuns daily at the mill. The new saddles for the Tramway will be here from San Francisco shortly, and then we expect to see all those clouds that hung upon the tram "in the bosom of the ocean buried," while the mules are turned out to graze. It is gratifying to observe that, while Comstock stocks slightly decline, the brokers are giving much attention to stocks on Eastern Nevada mines. The greater part of the productive mines in the District, however, are stocked in London; and there, also, we observe a good feeling toward this section, and the success of White Pine mines in that market has had the effect in a great degree to establish a good feeling toward American investments.

NORTH AURORA.

A great change has taken place in the Lady's Chamber the past week. In this extraordinary chamber of ore there is every facility for breaking down large bodies of ore at a comparatively light expense. There is now from 1,500 to 2,000 tons of ore in sight and broken down. There is so much ore on the dumps that it is not necessary to hoist from the Lady's Chamber at present. The ore now broken down is being wheeled off to the old Earl Chamber, in order to get at higher grade ore in the bottom of the workings. The Risdell shaft lacks about sixteen inches (as surveyed yesterday) of connecting with the chamber. Teams are constantly hauling ore to the mills, yet there is hardly a perceptible decrease on the dumps. Now that the full number of stamps (sixty) of the International mill are at work, it is gratifying to the managers of the Eberhardt and Aurora company's mines, as well as to people here who take an interest in the good reputation of the District, to know that there is ore enough in sight to run the stamps for an indefinite period of time.

SOUTH AURORA.

Since last report contracts have been let to sink three shafts, each seventy feet deep—one in the Turner drift, one in the Trewelle drift, and one in the Hanly drift. Ore in sight shows about the same as last week. The new tunnel to tap the ore sixty feet deeper than the old works, is going ahead at a rapid rate.

Great Western.—Working same force as last week. Drift from upper shaft in thirty feet in ore of low grade. Lower shaft is down sixty-one feet, going through a hard cap of lime rock. The vein is expected as soon as this is passed.

Beecher Consolidated.—Sinking incline in main shaft, in order to take out ore to advantage. Three drifts now running in ore. Dumps cleaned out and in at mill.

Argyle.—This mine is in Mahogany Cañon. Working same force of men as last week.

Hemlock.—Found a fine body of ore. Sinking in Hemlock Chamber.

Wabash.—Down forty-five meet; good ore in sight.

Glazier.—Osborne shaft sinking. Have found a large body of chloride and horn silver ore. Also sinking Miller shaft to strike ore at a greater depth.

Noonday.—Looking about the same as last week.

New York Co.—Work in tunnel going ahead as usual.

General Lee.—Running drift on spar seam. Now in 110 feet. Quality of ore improving. The foot wall pitching sharply to the northeast, could not be followed further, as the drift is running on a level, with ore on all sides of it, and prospects of soon developing a large body.

East Sheboygan.—Force of men increased since last report. Work is pushed ahead night and day, in breast and shaft. The breast is now about sixteen feet long, ten wide, and nine high, with ore throughout the whole face. The ledge is pitching fast into the hill, and becoming more solid. There is a good showing of horn silver in the ore, which resembles Hidden Treasure. The shaft shows eight feet of solid ore with a very rich streak between two and three feet wide, pitching into the hill. This company shipped their maiden brick this week, value $538 10, proceeds of twelve tuns of ore, to Valentine & Co., London.

Nevada.—The mine is looking well. Taking out good ore.

Mukwonago.—This mine is looking well in all the workings. Working the same force as last week. An increased force will be soon put on.

Ward Beecher.—The Phillpotts shaft is down, connecting with the Phillpots Chamber. Now hoisting ore from that chamber with the engine. The horse power has been moved from the whipshaft and erected on the Risdell shaft of the North Aurora. A large body of ore is in sight in this mine. Working the same force as last week.

Eberhardt.—Work is going on in the Keystone shaft and other portions of the mine. Appearance of the mine about the same as last report. Working the same force of men.

Genesee.—The South Aurora Company is preparing to sink a shaft from the bottom of the main incline one hundred feet deep. Other workings about as at last report.

South Iceberg.—Working about the same force of men as last week, and taking out fine ore.

Caspian.—Situated about 250 yards southwest of the Pocotillo. Incline now down nearly 200 feet, with drift from the bottom in forty feet. The last twenty feet are through a solid body of white and red spar, mixed with quartz. There is every prospect of striking a body of ore soon. The drift is at a perpendicular depth of 150 feet from the surface.

Silver Wedge.—This mine shows a marked improvement since last week. A year and a half ago a top deposit of ore was obtained at a depth of seventy feet. In the floor of this ore chamber a shaft has been put down fifty-seven feet—forty feet of the distance in solid limestone. A drift is in thirty feet in a southerly direction, toward the main ore channel, where there is good ore. Plenty of ore in the face of the drift.

Trench.—Fifty tons of ore from this mine is now at Monte Cristo mill. It assays $325 to the ton. Five tons per day is hauled from the mine to the mill. It is estimated that there is now $30,000 worth of ore in sight. Running three drifts of ore in all of them. Ledges from three to six feet wide. Working eight men.

Bald Eagle.—Incline down, about seventy-five feet. Ledge from four to five feet wide. One hundred and twenty-five tons of ore on the dumps that is expected to go $90 to the ton.

Philadelphia.—Incline down eighty feet. Ledge going down at an angle of thirty-five degrees. Fifty tons of ore on the dump.

OUTSIDE DISTRICTS.

Piermont.—Mill running on company rock. Sinking shafts and running main tunnel. Working a force of twenty-two men. There is a probability that ten more stamps will be added to the mill.

Schell Creek.—People are going to and coming from the Schell Creek country daily. Accounts are mainly favorable as to the existence of rich croppings found for a distance of fifteen or twenty miles on the Schell Creek range of mountains. Ruby Hill, ten or twelve miles south of Shellburn, is much spoken of. It is represented that heavy masses of rich ore crop out on the surface. There is an abundance of timb in the neighbor

hood of the mines, and water enough for all purposes. A town sight has been located and the name of Rubyville given to the town. Parties here are about to move the Henderson mill (five stamps) to the mines. Owners of mines at Ruby Hill should encourage capital to come in by putting down prices (when a buyer is in the field) to a reasonable figure.

PIOCHE.—A. J. BLAIR, superintendent of work in this excellent mine, afforded our reporter every facility for an examination of the works. The working shaft goes on down, and will soon reach the point for striking off the 300-foot level. The 200-foot level leads at sixty feet into the ledge, and an incline is down seventy-five feet from the end of this level, all the way in ore; and the drifts are run off seventy-five feet in each direction from the incline, between the walls. The ore body is large, and all milling ore of a high quality—averaging by assay $500 the ton. This ore, and in fact, all in the mine below 175 feet, is "free," requiring no rosting. The mill was stopped temporarily, to put up additional stamps, as with its former capacity it was unable to clear the dump at the mine. In about ten days the mill, with its increased capacity, will be going again. About the same time the Stetefeldt furnace will be ready to fire. Above the present workings of the mine, the entire body, down to a depth of 175 feet from the surface, is rich ore, but requiring to be chloridized. As soon as the Stetefeldt is ready to fire up, this immense body of ore will be put through —1200 tuns of it already in sight. The hoisting works are going into place as rapidly as possible, with the machinery coming piecemeal by teams from the Railroad. This stock, also, is gradually coming forward to its proper place in the Board. A dividend of $1 to the share was paid yesterday, and a surplus is carried forward in bank. With all facilities for more rapid work almost completed, with 700 tons of free and 1200 tons of base ore in sight, and ore in all the walls of all the workings, the Pioche is certainly looking finely, and may be expected in a few weeks to come up close upon its neighbor, the Raymond and Ely.

RAYMOND AND ELY.—This splendid mine is looking better to-day than ever before. At one hundred feet down in the Lighter shaft, the ore body is fourteen feet wide; mostly chlorides, averaging by essay $400 the ton. The company will be able to declare regular dividends from now forward, and, under this promising condition of affairs the stock is rapidly appreciating—going up $10 in as many days, and quoted last evening at $41, seller $30. It is well worth it.

MEADOW VALLEY was invisible to our reporter, for reasons probably understood by those interested.

WASHINGTON AND CREOLE.—This properly commenced, the past week, to attract some notice, by being quoted in two Boards of the Stock Exchange. It is located in the upper belt of the Meadow Valley series, near the Pioche. Taking out a small amount of ore. Stock put out on the Board at $5. Will be able to say something of its merits in our next issue.

RICHMOND—This excellent mine is soon to be worked on a larger scale by the new company which lately purchased the property. We are pleased to see that everything included in the purchase surpasses all expectation of the English company. The following notice of the works we quote from the Eureka *Sentinel* of the 14th: "From the 1st day of September until the 11th inst., a period of ten days, there has been produced at the Richmond furnace eighty tons of bullion of an average value of $235 in silver and $90 in lead, or a total of $325 per ton, making the gross value $23,000. This is a product of $2,800 per day from one furnace, and with the increased facilities soon to be at hand this amount will be more than tripled in a short time."

Colorado.

The Caribou *Post* of September 16, contains the following report on the

CARIBOU LODES.

The Magnolia lode is now attracting much attention as one most likely to develop into a saleable mine. It is opened down twenty feet by a well cribbed shaft to a well defined crevice of rich sulphurets of silver. It is the quality of the best on Caribou hill—The situation being 700 feet north-west of the Caribou mine. The owners are LAGRANGE & EGGERT, HERSINGER & BRO., and T. J. OYLER. The

PEABODY

is located fifty feet further down the hill—a parallel vein —the main shaft 30 feet deep. This is a very wide crevice, carrying with it several streaks of the rich sulphurets, with about six feet in width of "disseminated rock," that is, gangue filled with specks of pure sulphurets, so making the whole body of the crevice matter a fair grade of ore. From the time of its discovery last year, we have regarded this as one of the best mineral veins of the hill. OYLER, MC NEAL & REYNOLDS are the owners. On the same hill, the next strong, well-defined, and valuable mineral vein below the Caribou, is the

SHERMAN.

In the course of its development a new shaft is now being sunk seventy feet west of the main one, where a large body of surface silver quartz is found near the surface. This is being raised and piled on the dump for market. This is regarded as one of our best Grand Island lodes, of established reputation and high market value. The main shaft is seventy feet deep, and well timbered. From this shaft much valuable ore has been sent to market. PETER S. THOMPSON is developing the

TEN-FORTY

All along the vein for 500 feet, and it everywhere shows a true strong silver vein, only requiring depth to make it rank high among our silver producing mines. Its situation is in the tier of locations next west from the Caribou, Sherman and Poorman, and on the same hill. The

POTOSI

Is situated in town, between Idaho and Caribou streets, and is constantly worked by HILL & SMALLEY. They have an abundance of marketable ore on the dump—rich in sulphurets, silver glance, zinc blende, and brittle silver. The crevice is wide, and the situation most admirable for convenience, and altogether it constitutes one of the choicest properties of Grand Island. Of lodes more distant from town, one which we have mentioned last week, but which we had not the time this week to visit (our account of the above-named lodes is made from personal inspection) is the

MINT.

T. J. OYLER, owner. He showed us a large number of specimens from a very wide crevice. He is just opening the vein, is only down ten feet, and very justly regards it as a lode of rare value for working purposes. It is situated near the North Boulder, and only two miles, by a good road, from the Breed & Cutter mill. To the east of Grand Island is another system of mineral veins, not so rich but immensely large, (course north & south,) which will create great interest so soon as facilities for working the ore are provided. On one of these, near the Middle Boulder, two miles below Goss' ranche, Mr. JOSEPH WILLIAMS has sunk to the depth of twelve feet, and is now prosecuting the work. This is on the right bank of the creek and nearly opposite we believe, the noted Mastodon. Of the June crop of discoveries, noted in the *Post*, and which created so much interest at the time, one has already developed into a mine having a present cash value of thirty thousand dollars, and will soon pass into the hands of strong parties.

THE IDAHO LODE.

JOHN GATES superintending, is again active and producing some first-class ore, with the appearance that soon the whole body of the crevice will show its former richness. The ore is of the character most easily reduced, and ought to be treated at an expense not exceeding $5 per ton: It is supposed to be the easterly extension of the Caribou vein. It shows great strength and will eventually become one of our greatest sources of wealth. On the same hill the

ELEPHANT

Lode is being worked by D. Mishler & Co., with the most satisfactory results. This Idaho hill is the next elevation east from Caribou and is literally filled with mineral, and in time will all be dug down for the precious ores—the coveted silver of its rocks. Another lode near by is the

MONITOR,

Owned by H. V. EVERET & Co., of Rochester, New York, W. O. LOGUE agent. This has a shaft 62 feet deep, cribbed up with heavy timber, "in the best style of the art." It has a five-foot crevice of ore, similar in character to that of the Idaho and Elephant.

THE SMELTING FURNACE

Of KEARSING, HENDERSON & Co., will be completed in a few weeks. On their location, a little east of town, they have erected a neat and substantial building, 20x33. their furnace is designed to take a ton charge once in every five hours. The ore will be roasted in heaps, so as to throw off most of the sulphur, and pulverized so as to pass through an eight or ten inch screen. The ores will be classified and combined in the proper portions to produce a matte. The furnace is 8 feet in length, turtle shaped, made of fire-brick, and will be lined with a coating of enamel, composed in part of ground silica. The draft chimney will be 60 feet in height, also of fire-brick, the best which GOLDEN can afford.

Arizona.

The *Miner* of September 2 has the following

MINING ITEMS.

Just now there is a lull in the mining field, and we find but little that is new to report. In this vicinity, many miners are still prospecting their lodes, and piling up pay ore, which they will crush as soon as water comes. W. N. KELLY and others have just discovered another promising silver ledge. Its location is a little west of the General Crook lode, some three miles south from Prescott. The silver is contained in galena, assays of which have yielded enormously. Work upon it and the Crook is now going on.

C. Y. SHELTON is in town, purchasing animals to run his arastra on Upper Lynx creek. He has ready for crushing, several tons of Vernon ore. which he expects to pay at the rate of about $1,000 to the ton in free gold. Extensive operations will soon be commenced on the Tiger lode, Bradshaw District, under direction of CHARLES MEYERS, who arrived here last week, from San Francisco, on purpose to test the mine thoroughly, and, for the next four months, shafts will be driven in the mine, as fast as muscle and giant powder will be able to drive them. The mine is now looking exceedingly well, and water keeps coming in faster and faster in the deep shaft. The Vulture Company's mill, Wickenburg District, is undergoing repairs.

From Mohave county, the news is first-rate. Miners were constantly arriving, in the Wallapai District, and the three or four hundred men in the district were well satisfied with prospects. A spot in Mineral Park will be selected for a town site. The mill and furnaces will soon be ready for operations.

Utah.

We copy the following items, relating to

EAST CANON, OPHIR DISTRICT,

from the *Scientific Press* of Sept. 16:

This cañon was visited in 1864 by U. S. soldiers, who made a few locations; but failed to do much work in them, as they did not consider the base ores of any value. In June, 1870, a small number of energetic miners from White Pine came to look at the country and prospect for quartz. Since that time Ophir City has sprung into existence, and now contains a population of nearly one thousand souls, several stores, saloons, etc., a good school and a saw mill. On the road up the cañon I noticed a quartz mill and two smelting furnaces in operation. To the South of Ophir City is Lion Mountain, the summit of which is reached either by going the road from the town, about two miles long, or by way of Walker's mill, there being a good road from there for the purpose of bringing ore to the mill.

The largest lodes on the hill are the Mt. Lion, Mt. Tiger, Sunnyside, Silver Exchange, White Star, and Silver Chief. The first one I visited was the

MOUNT TIGER,

owned by WALKER & Co. The tunnel on this ledge is six feet wide and 175 feet long. The foreman, Mr. Daly, informs me that the ore will assay on an average $200 per ton in silver. There are 400 tons now on the dump, and ten men are employed in getting out ore. Passing by the Zella shaft the next mine that attracts attention is the

SILVER CHIEF,

a very old location on the hill, owned by W. T. BARBER and others. Ore has been worked from this claim that yielded by smelting process, $226 per ton. There are now 150 tons of carbonates and chlorides on the dump. The tunnel follows the ledge in for a distance of 135 feet, and it is thought the ore will yield from $125 to $150 per ton. The bench in front of the openings to the mine, has been dressed down in front of the ledge a distance of 150 feet, showing chloride veins the whole way. At the end of the main tunnel is a drift to the northward forty feet long. The

SILVER EXCHANGE,

owned by PHILLIPS & Co., have 800 sacks of ore on the dump, and employ twelve men. The

MOUNT LION

is a large ledge, located in August, 1870, and belonging to O. E. BATES. There are three shafts in this mine, the main one being thirty-five feet deep, and showing a fine body of ore nearly eight feet in width, which runs northeast and southwest. They have 300 tons of ore on the dump, and I was told by the foreman, Mr. Knapp, that twenty tons shipped to the reduction works yielded $500 net. This is one of the best mines in the district. Near by is a cave which was struck by some parties while prospecting. They run in a tunnel twenty five feet, and at the end opened into this cave, which is all the way from two to twenty feet in height and twenty wide. Small

streaks of chloride ore averaging from one and a half to three inches in width, and fine specimens of stalactites are to be seen. It is thought that a large deposit of ore is under the cave, and that gradual decomposition has let this body of lime-rock down to its present position. The Superintendent, Mr. Evans, is now sinking a shaft to determine this question. On South Ophir, or Silveropolis Hill, is the

OCCIDENTAL MINE,

located in August, 1870. The tunnel on this ledge is in sixty feet, and they have taken out 150 tons of ore, which is now lying on the dump. A sample lot worked by the Stetefeldt process at Reno, on the line of the C. P. R. R., yielded $230 per ton. The ore is hard chloride, and is as may be supposed, in limestone formation. There are twelve men at work on this mine.

THE TAMPICO

has five men employed in sinking the shaft which is thirty-two feet deep, showing an average width of two feet in the body of ore. Some horn silver has been found in this claim and the chloride runs about $75 per ton. Mr. James Crossley is superintendent. Leaving here we went to the

SILVEROPOLIS MINE,

where they have 400 tons of ore on the dump, sample lots of which have worked $95 per ton.

THE CHLORIDE POINT

has a tunnel on milling rock, 170 feet in length, running due north. Capt. Balch, the superintendent, tells me that there are 250 tons of ore on the dump ready to be worked. At Silver Hill, on the north side of the cañon, is the

VELOCIPEDE, NO. 1,

near the city, and located in November, 1870. The tunnel on this ledge is 100 feet, and the drifts, on both sides, ll in a body of ore. This is principally carbonate of lead, and is said to work easily, yielding from $45 to $50 per ton in silver. It is bought by the managers of the smelting works in the Cañon below. The rock being soft and decomposed is easily mined, and Mr. Manchester, the Superintendent, tells me that there are upwards of 1,000 tons on the dumps.

VELOCIPEDE, NO. 2,

has considerable ore on the dumps, and has a tunnel 75 feet in length, giving evidence of a large deposit. The shaft is only twelve feet deep.

SILVER SHIELD.

The main tunnel of this mine is sixty-five feet in length, at the end of which is a shaft thirty-six feet deep, passing through a fine looking body of ore. The wide drifts east and west are respectively seventy-five and fifty feet in length. The body of ore dips to the west, and averagee, it is said, $33 per ton in silver by smelting. There are eight men employed and they have 1,200 sacks of ore on the dump. This mine is quite extensive and belongs to Judge McKean, R. M. Robinson, Col. Kane and others. T. J. Smith is Superintendent.

THE CHRYSOPOLIS TUNNEL

has been run in forty-two feet, a short distance up the hill, and the company have good indications of ore. Messrs. Riley & Rafferty are the owners.

The Velocipede No. 1, Velocipede No. 2, and Silver Shield mines, have been connected by side drifts, all three of these locations being close together. The deposit of ore on this hill is considered to be fully as large as that of the "Emma," but it is not so rich in silver. Work is being carried on energetically in all these mines. I understand that there are a good many locations scattered about higher up the hill, but for want of time I did not visit them. There are a great number of prospectors at work in this vicinity, and we hear of new strikes quite frequently. The enterprise of tunneling the mountain, from the north side of Lion Hill to the south side of Horn Silver Hill, is exciting attention just now. A company has just been formed with an incorporated capital of $2,000,000 for this purpose. The locators in this enterprise are Messrs. T. G. McLaren, T. F. Tracy, J. C. Mathews, and others. McLaren's East Canon tunnel has been surveyed, and along the line the prominent altitudes above tide are as follows: East Canon Gulch, just above Ophir, 6,670 feet; "Silver Chief" mine, 8,500; "Mount Tiger" and "Zella" mines, 8,650; summit of Lion Hill, 9,100; "Mt. Lion" mine, 8,620; Mountain View House, Monarch and Virginia mines, 8,776; summit of Horn Silver Hill, 9,215; Vallejo and Occidental mines, 8,850.

Another tunnel company is talked of through Chloride Hill. It will tap the base of a number of mines, among them the "San Joaquin," "Chloride Gem," "Chloride Queen" and "Anna." These tunnel projects will be of grea utility to the entire district.

A careful estimate places the amount of ore now lying on the dump of mines on Lion Hill alone, at 6,000 tons, awaiting the completion of the mills. A large number of excellent mines are now idle waiting for the erection of reduction works.

The mines on Lion Hill are very extensive and are more fully developed than at any other place in the district. The mines containing the base ores, or argentiferous lead in its various forms, are principally on the North side of East Canon for a distance of three miles. There have been found also chloride ores of a high grade, in many places, in this base metal range, from the summit to the foothills. Among the ledges which bear chloride ores and are at the same time in the vicinity of those carrying base metal, are the Baltic, Lowland Chief, Nabob, Olive Branch, Eastern Star, Great Western. Chrysopolis, Albion, San Joaquin, Alabama, Kearsage, and Chloride Gem.

These ores although called free, will probably require roasting to perfect amalgamation in milling, since they all contain a small percentage of base matter, in the forms of antimony, lead, sulphur, arsenic, and copper. The smelting ores are principally in the form of galena, carrying on an average about $60 per ton in silver. The carbonates yield $40 per ton in silver on an average and 45 per cent. lead. The latter class of ore will have to be concentrated and freed from earthy matter before shipment for smelting. The grade of ores of this nature taken out thus far is too low to ship with profit, at present rates of freight, to the East or West, and the method of working ores which will approximate the fire assay the nearest is what is desired in this, as in every other district containing base metal ores. With an abundance of such ores as are now being taken out, the necessary fluxes (which are abundant) and a sufficient knowledge of metallurgy to treat them right at the furnace, the smelting business intelligently and economically managed must be very profitable in Ophir district.

So far as experiments have gone they have shown that the ores of Lion and Silver Hills will have to be roasted before amalgamating, for the reasons before mentioned. Good mills with furnaces attached can afford to pay a good figure for ores, as their process is much more perfect than the furnaces alone are, the latter being a comparatively new thing in the separation of silver ores in the interior, and the reputation of the process has suffered from the inexperience of those conducting it. It is improving, however, and bids fair, at no distant day, to compete favorably with any other process.

British America.

From the Owyhee *Avalanche* of September 9:

Mr. John Glynn, who, in company with a party of prospectors, left here for the Peace river mines some six months ago, returned this week, and does not give a very flattering account of that far-off region. Mr. Glynn went overland from Walla Walla, by way of Okanagan Lake, and estimated the distance at about 1600 miles. Returning, he came by the way of the mouth of the Quesnelle and Lillooet, thence to Victoria, San Francisco and home to this place. The distance by the latter route is 2200 miles. The mines are situated on the Omineca, a tributary of Peace river, the waters of which flow into Great Slave lake and thence find their way into the Arctic ocean through McKenzie's river. Our informant, who explored the country thoroughly, says that there are some good mines there, but not of sufficient extent to justify the great rush thereto this season. Disappointed multitudes are leaving every day, making their way, as best they can, to Oregon, California and the mining camps of Nevada, Idaho and Montana. Provisions there are enormously high, costing from $1 to $2 per pound. The heavy influx of population must still increase the prices, and it is feared that a famine must inevitably overtake the vast crowds of miners congregated there this winter.

This Peace river excitement has now become general throughout the Pacific slope, and has even infected our own locality. Mining stampedes have long been noted for their ungovernable qualities, and yet it is certainly as wise for miners to look before they leap as for the contractor to count well his cost before he submits his bid. Miners, as a class, are the most independent in the country, brave and generous to a fault, and will take greater risks than any other class of business men. It is their pride to launch out into the wilderness and make therein the first track of civilized man.

We would advise our miners to make haste slowly in leaving for Peace river. Let those who contemplate the journey ponder well the sacrifices and the hardships of the trip, the lateness of the season on their arrival there and the almost inevitable scarcity of provisions that they will there meet, together with the fabulous prices they will command, and scarcity of their money to carry them through the long and dreary winter.

The victims of the old Frazer river excitement, and later still, of the famous Cariboo stampede, will not for many long years forget the sore perils, disasters and hardships attending such trips.

From what we have been enabled to learn, and we have taken great pains to find out, Owyhee is to-day the most prosperous mining camp on the Pacific coast. A bird in the hand is worth two in the bush, is an old and true saying. Better stay at home.

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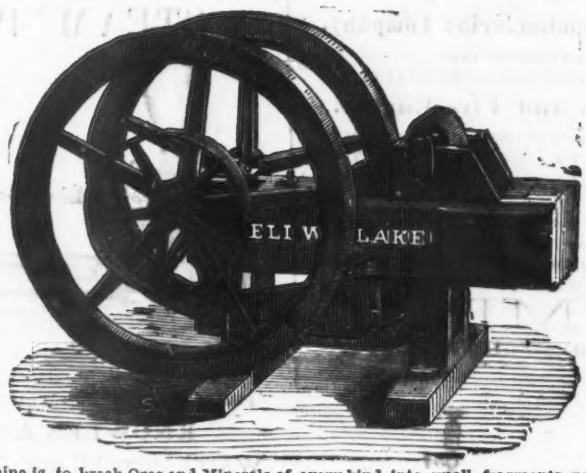

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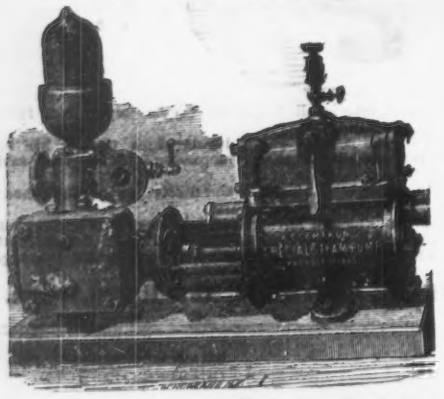

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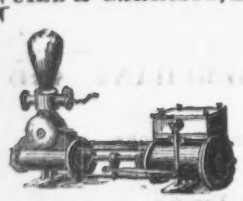

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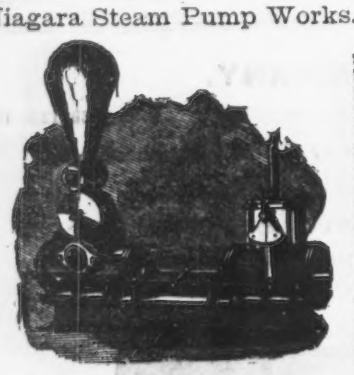

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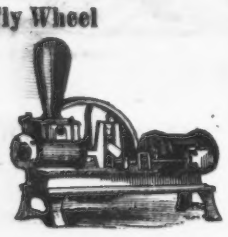

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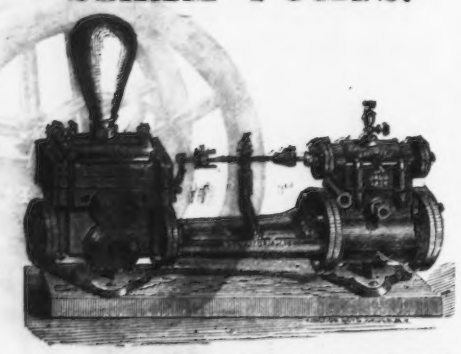

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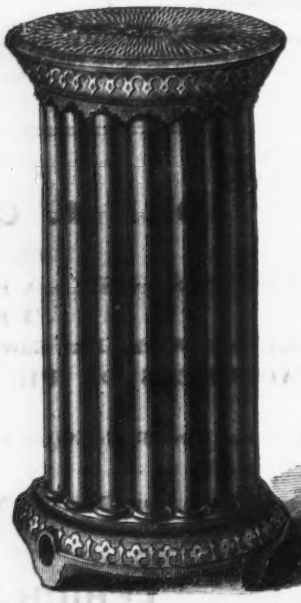

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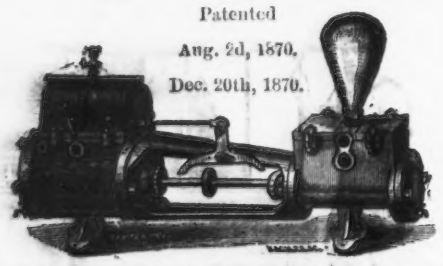

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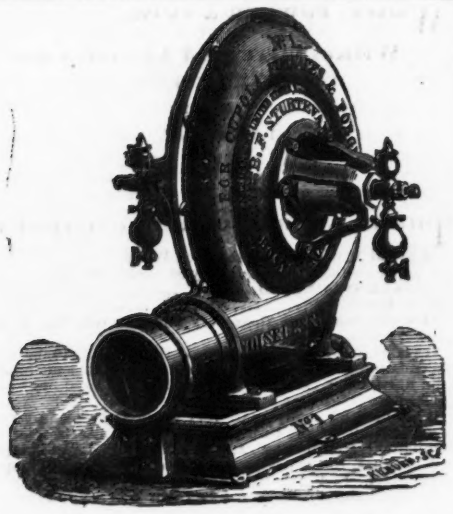

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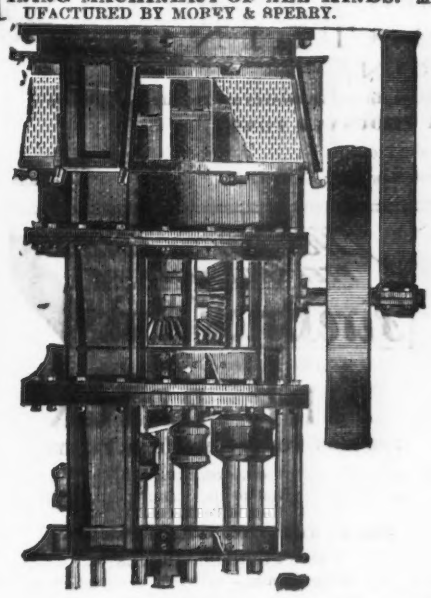

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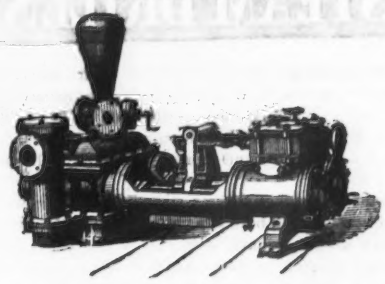

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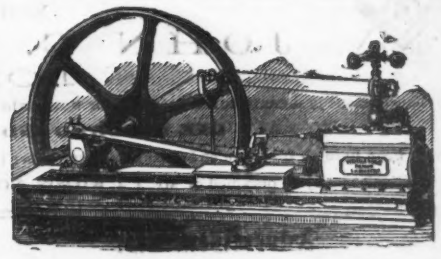

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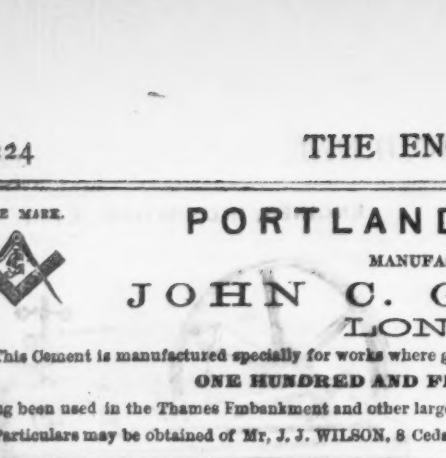
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